W. B. No. 592

Received Aug. 1, 1916
Issued Dec. 1, 1916

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
CHARLES F. MARVIN, Chief

MONTHLY WEATHER REVIEW

SUPPLEMENT NO. 3

AEROLOGY No. 1

INTRODUCTORY STATEMENT

I. SOUNDING BALLOON ASCENSIONS AT FORT OMAHA, NEBR., MAY 8, 1915

II. METEOROLOGICAL OBSERVATIONS ON BOARD THE U. S. C. G. CUTTER "SENECA," APRIL–JULY, 1915

III. DREXEL AEROLOGICAL STATION

IV. FREE-AIR DATA AT DREXEL AEROLOGICAL STATION, OCTOBER, NOVEMBER, AND DECEMBER, 1915

BY

THE AEROLOGICAL DIVISION, WILLIAM R. BLAIR, In Charge

WASHINGTON
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ANNOUNCEMENT.

During the summer of 1913 the issue of the system of publications of the Department of Agriculture was changed and simplified so as to eliminate numerous independent series of Bureau bulletins. In accordance with this plan, among other changes, the series of quarto bulletins—lettered from A to Z—and the octavo bulletins—numbered from 1 to 44—formerly issued by the U. S. Weather Bureau have come to their close.

Contributions to meteorology such as would have formed bulletins are authorized to appear hereafter as Supplements to the MONTHLY WEATHER REVIEW. (Memorandum from the Office of the Assistant Secretary, May 18, 1914.)

These supplements will comprise those more voluminous studies which appear to form permanent contributions to the science of meteorology and of weather forecasting, as well as important communications relating to the other activities of the U. S. Weather Bureau. They will appear at irregular intervals as occasion may demand, and will contain approximately 100 pages of text, charts, and other illustrations. Copies may be procured at the prices indicated below by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C.

SUPPLEMENTS PUBLISHED.

No. 1. Types of storms of the United States and their average movements. By E. H. Bowie and R. H. Weightman. Washington, 1914. 37 p. 114 ch. 4°. Price 25 cents.

No. 2. I. Calendar of the leafing, etc., of the common trees of the Eastern United States. By G. N. Lamb. 19 p. 4 figs. II. Phenological dates, etc., recorded by T. Mikesell at Wauseon, Ohio. By J. Warren Smith. 73 p. 2 figs. Washington, 1915. 4°. Price 25 cents.

No. 3. (Aerology No. 1.) Sounding balloon ascensions at Fort Omaha, Nebr., May 8, 1915, etc. By W. R. Blair and others. 67 p. 23 figs. Washington, 1916. 4°. Price, 25 cents.

INTRODUCTORY STATEMENT TO SUPPLEMENT No. 3.

By William R. Blair.

INTRODUCTORY STATEMENT TO SUPPLEMENT NO. 3, AEROLOGY NO. 1.

By WILLIAM RICHARDS BLAIR, Professor of Meteorology, in charge.

(Division of Aerological Investigations, Weather Bureau, Washington.)

This Supplement of the Monthly Weather Review, Aerology No. 1, is the first of a series of supplements that will take the place, so far as the publication of free-air data is concerned, of the Bulletin of the Mount Weather Observatory.

It is expected that a supplement of this series will be issued about every three months, and that it will contain the free-air data obtained during a recent three months period. Owing to the interruption of the free-air observations, incident to the transfer of the work from the Mount Weather Observatory to the plains of the Middle West, it has been necessary to assemble in this first number all the data obtained during 1915.

The first article contains data obtained at Fort Omaha by means of sounding balloons made in this country. Unfortunately these balloons were not so well suited to our purpose as those we had imported from Russia before the beginning of the European war. Previous free-air observations at Fort Omaha [1] had been carried out in the summer, autumn, and winter seasons, but no series of observations to great heights had been made in the spring. It was by way of completing this seasonal distribution of the observations that these observations were undertaken in the spring of 1915.

The U. S. Coast Guard cutter *Seneca* while on ice patrol duty has been made available to the various Government bureaus for some years past as a means of scientific observation in or over the waters of the North Atlantic. Instruments for the observation of surface meteorological conditions were furnished by the Weather Bureau in the spring of 1914. The observations of that year were made by a representative of the Bureau of Standards, in connection with work on water temperatures and salinities being done by that bureau. The Bureau of Fisheries also had a representative on the *Seneca* in 1914. In the spring of 1915 the Weather Bureau sent its own representative, who, in addition to surface observations, carried out some free-air observations by means of kites. The second article of the supplement is concerned with the free-air data thus obtained. The Bureaus of Standards and of Fisheries were also represented in the spring of 1915.

On June 30, 1914, free-air observations at the Mount Weather Observatory were discontinued, and the initial steps taken toward the establishment of several aerological stations on the plains of the Middle West. The site of the first of these stations was decided upon in the autumn of 1914 and leased November 1, 1914. The third and fourth articles of this Supplement describe the aerological station on Drexel Farm and show the free-air data obtained there during 1915, respectively.

With this new form of publication of free-air data it has been thought advisable to introduce the millibar, instead of millimeter of mercury, as the unit of pressure, and to include in the tables of data a column showing gravity potential in gravs, the grav being equal to 10^5 ergs. A comparison of these tables with those published in the Bulletin of the Mount Weather Observatory shows some other minor changes in form, but these are mostly by way of adapting the tables to the larger page now used.

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[1] Vol. 4, part 4, Bulletin Mount Weather Observatory and May, 1916, number MONTHLY WEATHER REVIEW.

I.

SOUNDING BALLOON ASCENSIONS AT FORT OMAHA, NEBR., MAY 8, 1915.

By The Aerological Division, William R. Blair in charge.

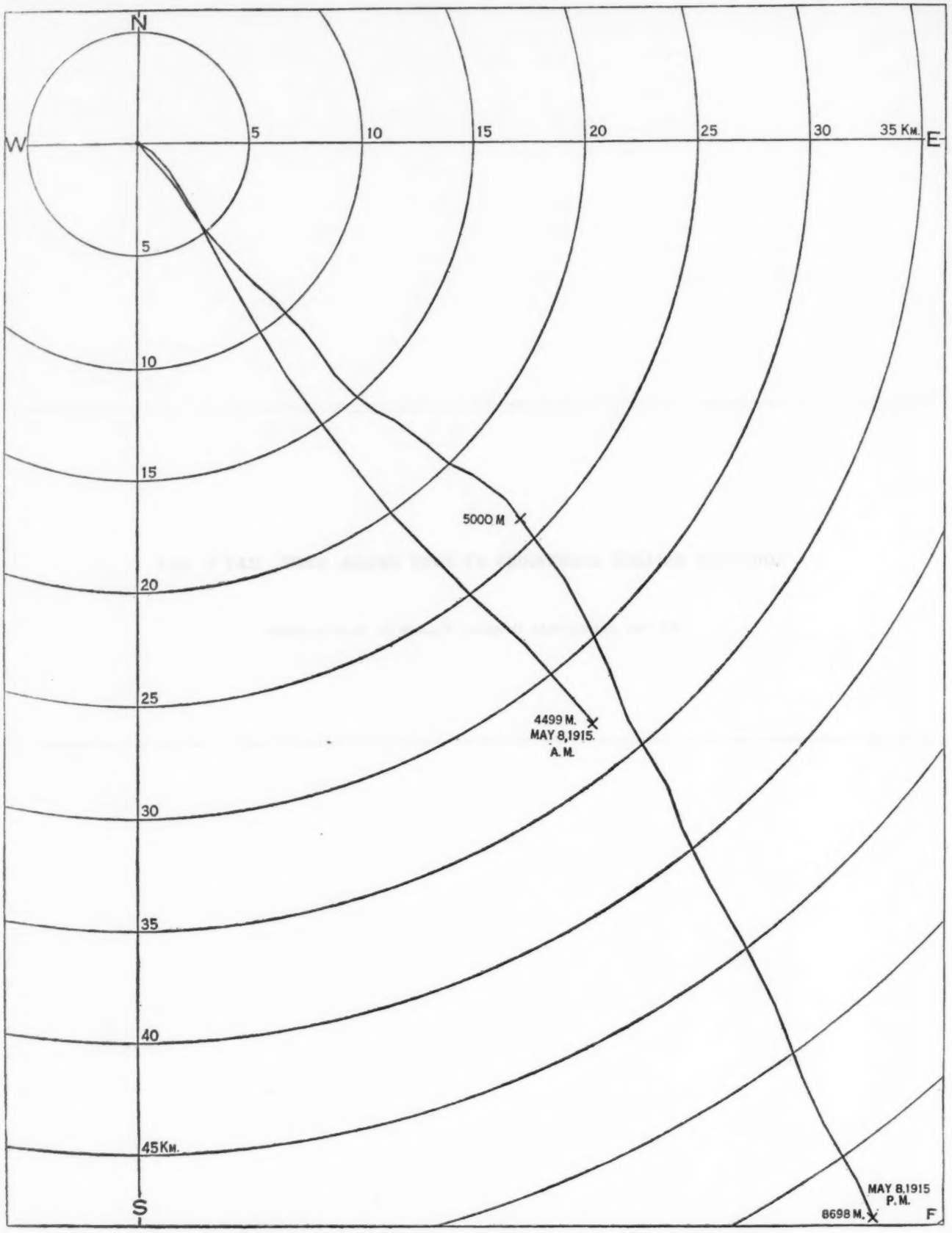

FIG. 1.—Horizontal projections of the paths of the sounding balloons liberated at Fort Omaha, Nebr., May 8, 1915.

I. SOUNDING BALLOON ASCENSIONS AT FORT OMAHA, NEBR., MAY 8, 1916.

By the AEROLOGICAL DIVISION, WILLIAM R. BLAIR in charge.

It was planned to make a series of 25 or 30 daily aerial soundings at Fort Omaha (lat. 41° 19′, long. 95° 57′) in the spring of 1915, but upon trial the balloons available were found to be faulty. Plans for the series were therefore abandoned. Two ascensions only were obtained with six balloons. The other four balloons burst during or soon after filling.

These two ascensions were made in the forenoon and afternoon of May 8, 1915. The first was to a height of 8.5 kilometers, the second to a height of 14.5 kilometers. An area of low pressure was central over White River, Canada, and a ridge of high pressure extended from Montana southward to Colorado on the morning of May 8. The low-pressure area was well developed, having a minimum pressure of 986.9 mb. The maximum pressure in the high-pressure area was 1016.0 mb. Both ascensions were made over rising air pressure at the earth's surface, but well toward the pressure maximum. The air movement of the lower stratum was therefore from a direction well to the north of west. The rate of air movement in this stratum is considerably higher in the morning than in the afternoon ascension. The afternoon ascension was made nearer the western limit of the stream of air flowing between the two pressure centers above described, while the morning ascension was well out in the current. At higher levels the wind became more nearly west.

Table 1 and figure 1 serve to show the general drift of the balloons during the ascensions and the accurate horizontal projections of their paths as far as they could be followed with the theodolite. The complete data obtained in the two soundings are tabulated in Table 2. In figure 2 are charts of the temperature-altitude relations observed in both ascensions.

TABLE 1.—*Statistics of sounding balloon ascensions at Fort Omaha, Nebr., May 8, 1915.*

Date.	Hour.	Balloons.		Landing point.	Horizontal distance traveled.	Direction traveled.	Highest altitude reached.	Lowest temperature recorded.
		Number.	Ascensional force.					
1915.			*kg.*		*km.*		*m.*	*°C.*
May 8...	7:03 a.	1	0.8	Clarinda, Iowa.....	102	se.	8,172	−31.8
8...	6:01 p.	1	0.6	Orrsburg, Mo.....	142	se.	14,483	−56.8

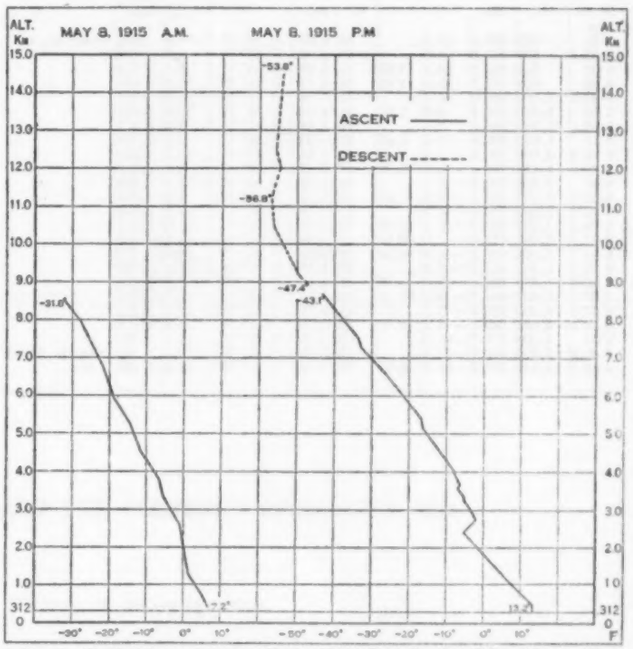

FIG. 2.—Vertical temperature gradients, °C, at Fort Omaha, Nebr., May 8, 1915.

TABLE 2.—*Free-air data from sounding balloon ascensions at Fort Omaha, Nebr.*

May 8, 1915 (No. 1).

Time.	Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\,m.}$	Humidity.		Wind.		Potential.	Remarks.
					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	
H. m. A. M.	*m.*	*mb.*	*°C.*		%	*mb.*		*m.p.s.*	*10^3 ergs.*	
7 03	312	972.3	7.2	.....	72	7.32	N. 50° W.	5.3	306	Cloudless.
7 04.2	500	951.1	6.2	.....	72	6.83	N. 46° W.	8.5	490	
7 05.9	721	925.0	5.1	0.51	73	6.42	N. 38° W.	13.9	707	
7 07.6	1,000	894.2	3.3	.....	76	5.88	N. 30° W.	19.1	980	
7 09.5	1,293	861.9	1.4	0.65	79	5.34	N. 28° W.	21.9	1,268	Few Cu., nw.
7 11	1,500	840.2	1.0	.....	75	4.93	N. 30° W.	21.8	1,470	
7 14	1,979	791.3	0.1	0.19	67	4.12	N. 34° W.	24.8	1,940	
7 14.2	2,000	788.9	0.1	.....	67	4.12	N. 34° W.	24.8	1,960	
7 17.3	2,500	740.4	− 0.9	.....	61	3.46	N. 37° W.	21.6	2,450	
7 18	2,622	730.4	− 1.1	0.19	60	3.34	N. 38° W.	20.3	2,569	
7 20.4	3,000	696.0	− 3.3	.....	57	2.64	N. 42° W.	23.5	2,939	
7 22	3,345	666.7	− 5.3	0.58	55	2.15	N. 44° W.	22.6	3,277	
7 23.4	3,500	652.9	− 5.8	.....	54	2.02	N. 46° W.	20.8	3,429	
7 25.4	3,832	626.4	− 6.7	0.29	53	1.84	N. 47° W.	24.4	3,753	
7 26.4	4,000	612.5	− 7.9	.....	52	1.62	N. 43° W.	22.9	3,918	3/10 Cu., nw.
7 29	4,499	577.2	−11.4	0.70	48	1.10	N. 40° W.	30.3	4,406	Balloon disappeared.
7 32.3	5,000	538.4	−13.4	.....	42	0.80	.....	.....	4,896	
7 33.5	5,223	523.0	−14.3	0.40	40	0.70	.....	.....	5,114	
7 37.8	5,944	475.5	−18.7	0.61	37	0.43	.....	.....	5,818	
7 38.1	6,000	471.2	−18.9	.....	37	0.42	.....	.....	5,873	
7 42	6,709	428.6	−21.4	0.35	35	0.32	.....	.....	6,565	
7 43.5	7,000	411.8	−22.9	.....	34	0.26	.....	.....	6,850	
7 48.1	7,961	361.3	−27.8	0.51	29	0.176	.....	.....	7,788	
7 48.4	8,000	359.0	−28.1	.....	29	0.132	.....	.....	7,826	
7 50.6	8,472	336.8	−31.8	0.78	28	0.086	.....	.....	8,286	

TABLE 2.—*Free-air data from sounding balloon ascensions at Fort Omaha, Nebr.*—Continued.

May 8, 1915 (No. 2.)

Time.	Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\,m.}$	Humidity.		Wind.		Potential.	Remarks.
					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	
H. m. P. M.	*m.*	*mb.*	°*C.*		%	*mb.*		*m.p.s.*	10^5 *ergs.*	
6 01	312	976.4	13.2	.....	45	6.83	N. 35° W.	3.0	306	Few Cu., w.
6 02.9	500	954.6	13.2	.....	40	6.07	N. 38° W.	8.9	490	
6 03	522	952.4	13.2	0.00	39	5.92	N. 38° W.	9.2	512	
6 05	653	937.6	11.6	1.22	39	5.33	N. 40° W.	8.2	640	
6 07.6	1,000	899.0	8.1	.....	42	4.54	N. 33° W.	11.6	980	
6 10	1,223	875.3	5.9	1.00	44	4.09	N. 36° W.	10.4	1,199	
6 12.1	1,500	845.3	3.2	.....	46	3.54	N. 42° W.	9.4	1,470	
6 15	1,853	809.8	— 0.2	0.97	50	3.00	N. 46° W.	9.8	1,816	
6 16.5	2,000	794.2	— 1.4	.....	52	2.83	N. 47° W.	10.2	1,960	
6 20.4	2,442	751.9	— 5.1	0.83	57	2.27	N. 43° W.	6.1	2,393	
6 21	2,500	746.0	— 4.5	.....	54	2.26	N. 43° W.	4.8	2,450	
6 23.3	2,750	723.1	— 2.0	—1.01	42	2.17	N. 37° W.	9.9	2,694	
6 25.1	3,000	700.0	— 3.2	.....	37	1.73	N. 34° W.	11.1	2,939	
6 25.5	3,034	697.7	— 3.4	0.49	36	1.66	N. 36° W.	10.9	2,973	
6 27.3	3,262	677.9	— 5.3	0.83	34	1.33	N. 45° W.	10.1	3,196	
6 28.7	3,386	667.1	— 5.3	0.00	34	1.33	N. 52° W.	10.5	3,317	
6 29.4	3,500	657.3	— 6.2	.....	33	1.19	N. 55° W.	10.1	3,429	
6 29.9	3,563	652.4	— 6.8	0.85	33	1.14	N. 57° W.	9.5	3,490	
6 30.7	3,689	641.7	— 6.3	—0.40	32	1.15	N. 60° W.	8.5	3,613	
6 33.2	4,000	616.3	— 7.7	.....	31	0.99	N. 53° W.	12.6	3,918	
6 33.9	4,098	609.0	— 8.2	0.46	31	0.94	N. 51° W.	12.4	4,014	
6 37	4,500	577.7	—11.2	.....	29	0.68	N. 63° W.	11.0	4,407	
6 40.8	5,000	540.7	—15.0	.....	27	0.45	N. 39° W.	18.4	4,896	Nearly cloudless.
6 41.7	5,148	531.2	—16.1	0.75	26	0.39	N. 37° W.	18.4	5,040	

Time.	Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\,m.}$	Humidity.		Wind.		Potential.	Remarks.
					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	
H. m. P. M.	*m.*	*mb.*	°C.		%	*mb.*		*m.p.s.*	10^5 *ergs.*	
6 43.9	5,405	513.3	—16.8	0.27	26	0.36	N. 31° W.	18.7	5,291	
6 48.3	6,000	473.2	—21.5	.....	26	0.23	N. 23° W.	18.9	5,873	
6 48.8	6,073	469.7	—22.1	0.79	26	0.22	N. 22° W.	19.2	5,944	
6 52.5	6,565	438.8	—26.0	0.79	25	0.141	N. 21° W.	19.0	6,425	
6 55.6	7,000	412.2	—30.1	.....	25	0.092	N. 28° W.	24.6	6,850	
6 58.4	7,290	397.0	—32.8	0.94	25	0.069	N. 28° W.	25.6	7,133	
7 00.1	7,554	382.6	—33.8	0.38	25	0.062	N. 24° W.	27.7	7,390	
7 02.9	8,000	358.9	—37.4	.....	25	0.042	N. 25° W.	18.9	7,826	
7 07.2	8,698	324.4	—43.1	0.81	25	0.022	N. 23° W.	31.0	8,506	Clock stopped, but ran again during descent.
.....	14,483	133.7	—53.8	—0.08	25	0.006	.....	.....	14,138	
.....	14,000	144.1	—54.2	.....	25	0.006	.....	.....	13,669	
.....	13,208	162.8	—54.8	—0.12	25	0.005	.....	.....	12,899	
.....	13,000	167.9	—55.0	.....	25	0.005	.....	.....	12,696	
.....	12,514	180.9	—55.6	0.26	25	0.005	.....	.....	12,224	
.....	12,083	193.7	—54.5	—0.28	25	0.006	.....	.....	11,804	
.....	12,000	195.7	—54.8	.....	25	0.005	.....	.....	11,724	
.....	11,271	219.1	—56.8	0.09	25	0.004	.....	.....	11,014	
.....	11,000	228.1	—56.6	.....	25	0.004	.....	.....	10,750	
.....	10,466	248.1	—56.1	0.46	26	0.004	.....	.....	10,230	
.....	10,000	266.1	—54.0	.....	27	0.006	.....	.....	9,776	
.....	9,873	271.7	—53.4	0.58	27	0.007	.....	.....	9,652	
.....	9,169	302.7	—49.3	0.97	27	0.011	.....	.....	8,966	
.....	9,000	310.1	—47.7	.....	27	0.014	.....	.....	8,801	
.....	8,973	311.7	—47.4	1.56	27	0.015	.....	.....	8,775	

II.

METEOROLOGICAL OBSERVATIONS ON BOARD THE "SENECA," APRIL–JULY, 1915.

By The Aerological Division, William R. Blair in charge.

FIG. 4.—Method of attaching meteorograph to line about 50 meters below kite.

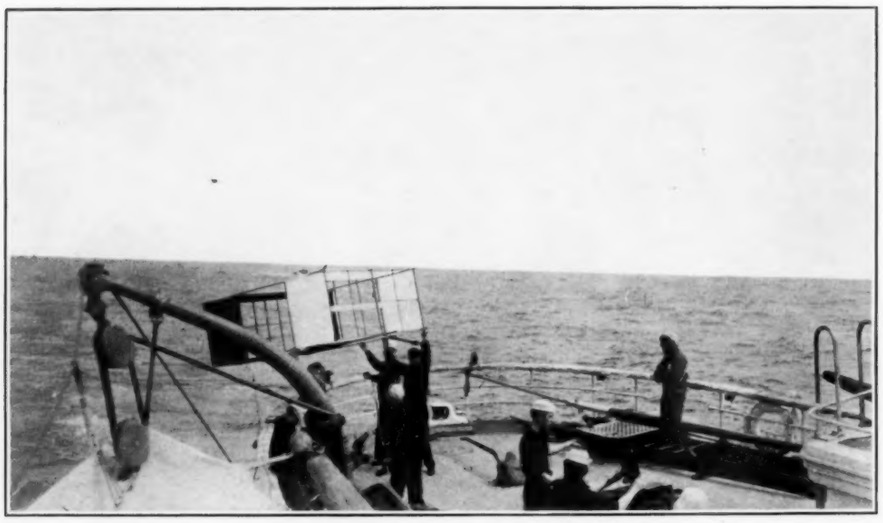

FIG. 5.—Launching the kite.

II. METEOROLOGICAL OBSERVATIONS ON BOARD THE U. S. COAST GUARD CUTTER SENECA, APRIL TO JULY, 1915.

By the AEROLOGICAL DIVISION, WILLIAM R. BLAIR in charge.

The plan for this work contemplated both surface and free air observations, the former for the four cruises of the *Seneca*, the latter for the May and June cruises. The equipment necessary for the free-air observations was prepared by the Aerological Division of the Weather Bureau. Instruments for observation of surface conditions were issued by the Instrument Division. The work of installing the equipment and of making the observations was intrusted to Mr. C. S. Wood, whose description of the installation and of the methods of observation follows.

KITE FLYING ON THE U. S. COAST GUARD CUTTER SENECA, MAY AND JUNE, 1915.

By C. S. WOOD, Meteorologist.

[Dated: Weather Bureau, Ludington, Mich., Dec. 14, 1915.]

The equipment consisted of eight Marvin box kites, of the standard size (lifting surface, 6.3 sq. m.) used by the United States Weather Bureau, two Marvin meteorographs recording pressure, temperature, and humidity, an automatic kite reel (one formerly used at Mount Weather, Va.), and an electric motor for operating the reel.

The reel was fastened by metal angle pieces and lag screws to the main deck just to the rear of the after-deck house, somewhat nearer the starboard side of the ship so as not to interfere with the sounding apparatus and cable located on the other side (fig. 7). This left barely 6 meters of deck space between the reel and the stern of the boat for the launching and landing of kites, but was probably the best location available. The motor was mounted on a small platform attached to the supporting frame of the reel. It was thus more or less exposed to the weather and had to be kept carefully covered. There was no well protected space on deck for storing kites when set up, and no door or hatchway large enough to permit of their being taken in or out without collapsing them, so no attempt was made to use more than one kite at a time, except during most favorable weather conditions. Kites were, during considerable of the time, kept on deck and covered with canvas and lashed down with ropes. This gave some protection but not all that could be desired.

In the earliest flights the meteorograph was fastened within the kite, as has been the Weather Bureau custom in flights over land. In land flights this method has proved very satisfactory, but from the deck of a vessel at sea it was found less satisfactory (see fig. 4). Over land a kite may fall from an altitude of 3 or more kilometers, and the force of the fall be sufficiently broken by the various turnings and glidings of the kite so that on landing the kite offers enough protection to the instrument within to prevent its being damaged to any material extent. But if a kite comes down at sea, especially with the ship in motion, the chances of recovering the kite with an instrument in it are not good, and the chances of finding the instrument in good condition are still less. Owing to the ever present swell at sea and the resulting motion of the ship, considerable difficulty was encountered in landing kites, although in dry weather no kites were lost or seriously damaged. In fog and rain, however, there was almost always trouble, and after losing one kite and meteorograph in the ocean, due to a rain squall that started suddenly near the end of a flight, a different method of attaching the meteorograph was considered desirable. The method that was tried and found practicable was to attach it to a short length, about 1½ meters, of double cord, between the main steel wire cable and the single cord, about 50 meters long, on which the kites were launched in later flights. The meteorograph was suspended by short lengths of single cord of suitable length to insure its hanging in a nearly horizontal position and to keep the ventilating tube in line with the wind so that there would be a good circulation of air through the tube. A more satisfactory arrangement would probably be a short length of the regulation piano steel wire with swivel at each end, so that neither the twisting of the main cable nor of the kite cord would disturb the meteorograph.

Although the "kite field" was decidedly limited, it was possible to launch a kite even in a light wind if the ship were heading into it, and in a gentle breeze successful launchings were made with the wind nearly at right angles to the ship's course. The navigating officers of the *Seneca* rendered valuable assistance by altering ship's course or speed for short periods when such changes were requisite to successful launching or landing. After the kites were launched, they could be flown in a breeze slightly abaft the beam, but only slightly so, as care had to be taken that the wire did not foul the ship's rigging.

Although flights could be made in light winds with the assistance of the ship's speed, which as a rule did not much exceed 10 knots, such flights were not very satisfactory, as but little wire could be put out. The most successful launchings were made from the top of the after deck house, two of the seamen carrying the kite to the rail about 6 meters away. This house is only about 2½ meters high, but this extra height was sufficient to enable one to control the kite much better than from the main deck, so that we had very few accidents and the launchings were usually successful on first trial. But in landing kites, as already stated, we had considerable unavoidable difficulty. In a light breeze and fair weather, with only moderate swell, landings were comparatively easy, but in fog or in a heavy sea they were difficult, while with rain, wind, and swell trouble was a certainty.

A smaller kite probably could have been flown on days when it seemed inadvisable to attempt a flight with the larger size and landings might possibly have been easier and safer.

The humidity elements of the meteorographs were found to be rather delicate, being out of order on both instruments when unpacked, and in a number of the flights no satisfactory humidity records were obtained.

The meteorograph was placed, previous to each flight, for the purpose of obtaining a base line for temperature, in a small louvered instrument shelter of the type furnished cooperative observers of the Weather Bureau. This shelter was located on the searchlight deck above the upper pilot house, so that, being well forward, and about 6 meters above the main deck, it is believed that the temperature there was affected very little by the ship, especially during kite flights, as the winds then were usually from a forward quarter. During flights temperatures were read from a whirling psychrometer, which was usually swung over the rail to the windward side, about 3 or 4 meters above water.

The kite reel had about 6 kilometers of steel piano wire wound on it, ranging from eight-tenths to one millimeter in diameter. The maximum amount used in one flight was about 4½ kilometers with two kites out, and 3½ kilometers with one. Frequently, however, it was impossible to let out as much as 1 kilometer to advantage with only one kite up.

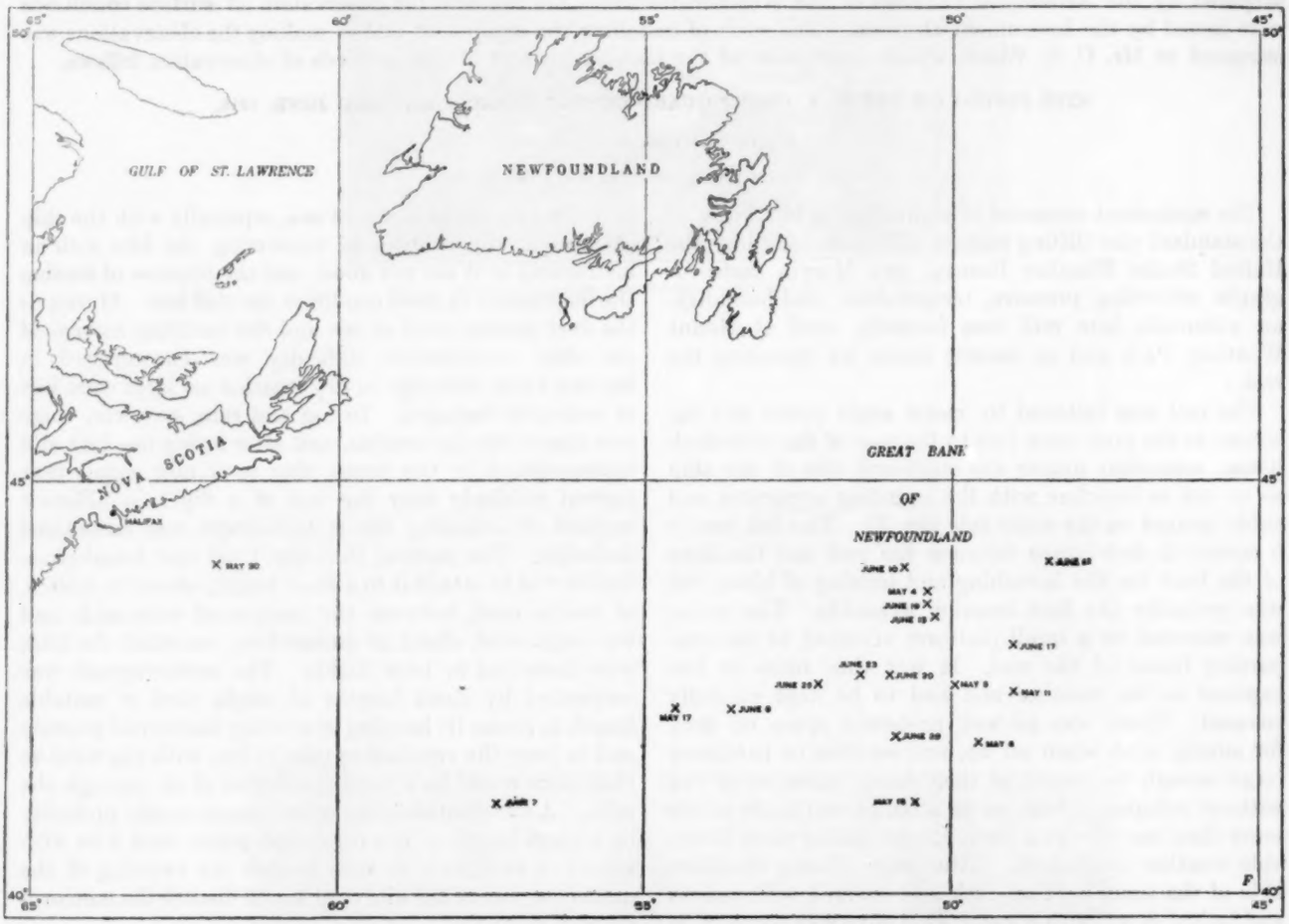

FIG. 3.—Location of U. S. Coast Guard cutter *Seneca* on days when kite flights were made, during May and June, 1915.

[To face p. 14.]

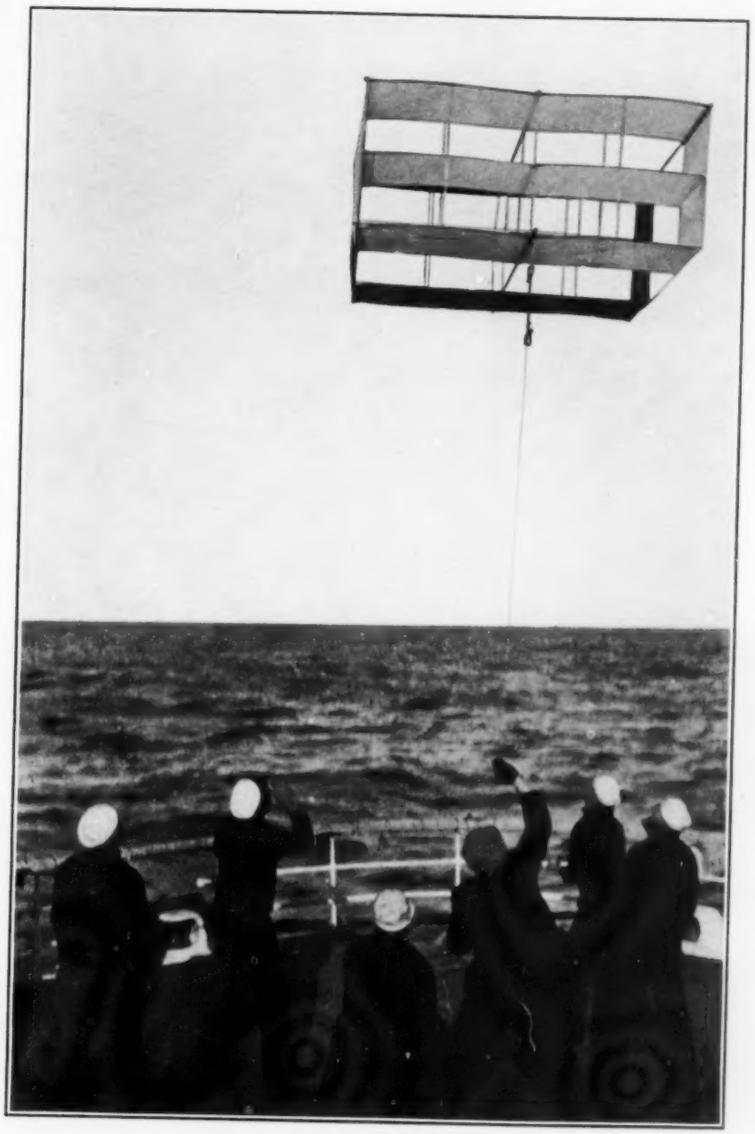

FIG. 6.—Landing the kite.

[To face p. 15.]

FIG. 7.—The kite landed: also the kite reel and "kite field."

OBSERVATIONS OF SURFACE METEOROLOGICAL CONDITIONS ON THE U. S. C. G. CUTTER "SENECA," APRIL TO JULY, 1915.

By C. S. Wood.

In addition to the free-air records obtained by means of kites, observations were taken on board ship at 8 a. m. 60th meridian time (Greenwich mean noon) and at 9 p. m. 60th meridian time. Readings of the dry- and wet-bulb thermometers were also taken at 6 p. m. 60th meridian time. The thermograph and barograph were kept running while in port as well as at sea, and in port the Greenwich mean noon observation was also continued as a check on the recording instruments. The barograph was located in the lower pilot house, about 5 meters above water. The mercurial marine barometer was also located there, but readings of this instrument were discontinued after the first few days at sea, as even in a moderate swell the fluctuations in the height of the mercury column were sufficiently large to render accurate readings impossible. Barometric readings were obtained from the Halifax office of the Canadian Weather Service at times when the *Seneca* was in Halifax Harbor, by which to check the readings of the barograph. The instrument shelter and rain gage were located on the searchlight deck above the upper pilot house, about 9 meters above water. In the shelter were maximum and minimum thermometers and a thermograph. The readings of the thermograph agreed reasonably well with the thermometers throughout the trip. Except when the ship was at anchor, or was moving in a direction agreeing somewhat closely with that of the wind, the temperature readings in the shelter were probably affected only slightly by heating due to the ship.

The humidity readings were obtained by whirling the psychrometer on the windward side of the ship on main deck about 3 meters above the surface of the water.

The observations of surface conditions have been used by the Climatological Division of the Weather Bureau in the construction of charts showing conditions over the North Atlantic for these months and, in part, in connection with the study of the free-air records. During the June cruise Mr. Wood attempted to use his surface observations, together with certain others received by wireless, in the construction of a daily weather map of the eastern part of North America and the western part of the North Atlantic. His account of this work and some illustrations of the maps produced follows.

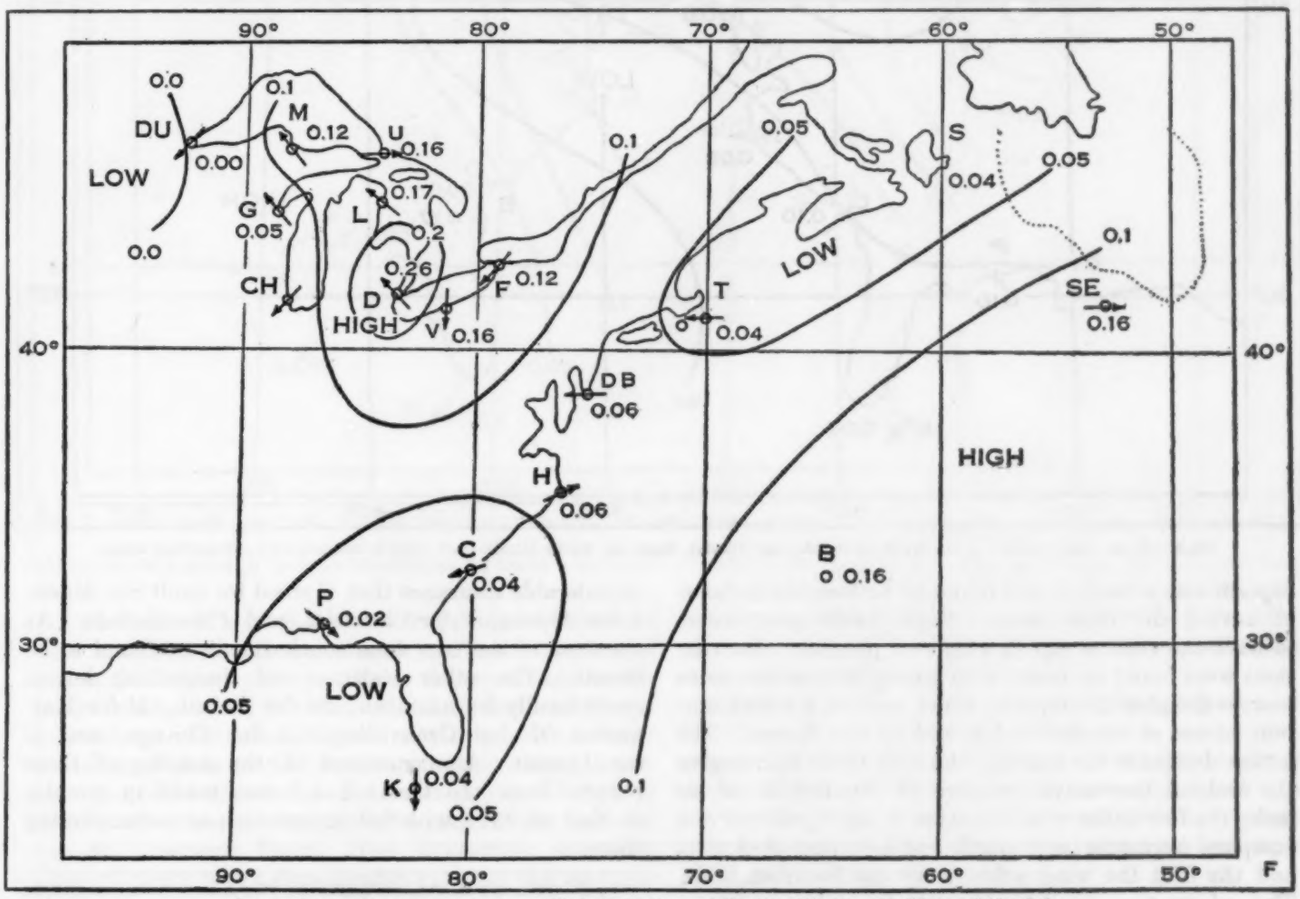

FIG. 8.—*Seneca*, June 26, 1915, 9 p. m. Winds for Sunday and Monday, Atlantic coast: Light variable winds.

RADIO WEATHER MAPS MADE AT SEA.

By C. S. Wood.

Early in the June cruise of the *Seneca* attention was called by the ship's electrician to the fact that the p. m. weather reports from Bermuda and a number of stations on the Atlantic and Gulf coasts and the Great Lakes were sent out each night by radio from Arlington, shortly after 10 p. m. 75th meridian time. Believing that these reports, taken with the *Seneca's* observations, might furnish sufficient data for drawing a daily a. m. or p. m. weather map which would be worth the while, the ship's captain was consulted and found to be heartily in favor of having the maps made. Capt. Levis gave orders to have the reports copied whenever possible. Instructions were found on board ship giving information as to how to decipher the reports, which consist, for each station, of one or two letters followed by five figures. The letters designate the station; the first three figures give the sealevel barometric pressure to hundredths of an inch; the fourth the wind direction to eight points of the compass, beginning with north and counting clockwise; and the fifth the wind velocity by the Beaufort scale. The information available gave names of stations on Atlantic and Gulf coasts from which reports are received, each station being designated by initial letter or letters[1] except Nantucket, which is represented by *T*. No information could be found on board ship giving names of Lake stations, and as four of the nine lake stations received were not designated by their initial letters, the stations could not be positively named the first night. After charting the data for three successive nights, however, it was possible, by comparing data, to decide with considerable assurance that *U* stood for Sault Ste. Marie, *L* for Alpena, *V* for Cleveland, and *F* for Buffalo. At the close of the trip these conclusions were found to be correct. The other stations and designating letters could hardly be mistaken: *Du* for Duluth, *M* for Marquette, *G* for Green Bay, *Ch* for Chicago, and *D* for Detroit. Announcement of the sending of these reports from the Great Lakes was made in circular of May 15, 1914, with full information as to deciphering them.

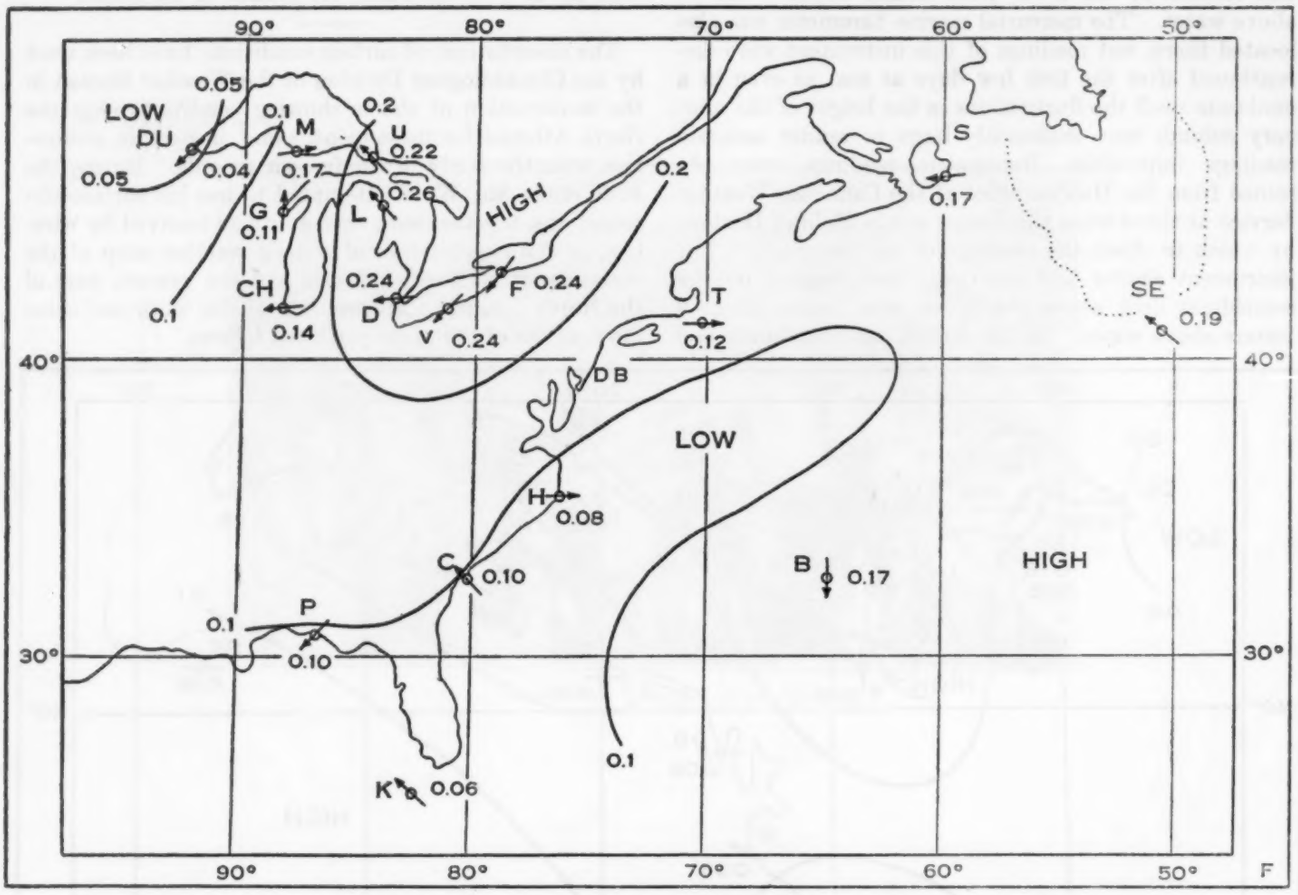

FIG. 9.—*Seneca*, June 27, 1915, 9 p. m. Winds for Monday and Tuesday, North and Middle Atlantic coast: Light to moderate north and northeast winds.

[1] Viz, H=Hatteras; D B=Delaware Breakwater; P=Pensacola; C=Charleston, S. C.; K=Key West; S=Sidney, C. B. I.

By means of carbon paper and stylus, blank maps were prepared on thin typewriter paper, embracing the Great Lakes region, Atlantic and east Gulf coasts and that portion of the North Atlantic Ocean likely to be included in the cruise of the *Seneca*. At first it seemed somewhat doubtful if reports from 17 stations so widely scattered (or 18, counting the *Seneca* reports) would be sufficient to make a reliable map, but when reports were received on successive nights, so that the previous map was available for comparison, it was possible to construct maps, which, I believe, approximated closely enough to true conditions to have a decided value.

Two classes of storms that are frequently encountered over and near the Grand Banks are those that travel across the Lakes region, and those that come up the Atlantic coast; and as the weather conditions accompanying each are more or less distinctive it is desirable to know at an early date to which class an approaching storm belongs. This information the weather map will supply.

It was frequently found, however, that in the region of the St. Lawrence Valley, New Brunswick, and New England there was a considerable space of the map not covered by observations, and as observations may readily be had from this region it would seem that observations from two such stations as Quebec and Eastport would add sufficiently valuable information to warrant including them, forming as they often would a connecting link between the Lake region and the coast reports.

The three maps shown (figs. 8, 9, 10) are selected from maps actually drawn while on board ship. Occasionally there were breaks in the series, there being a number of nights when at the time specified for receiving the reports conditions were such that no reports could be copied.

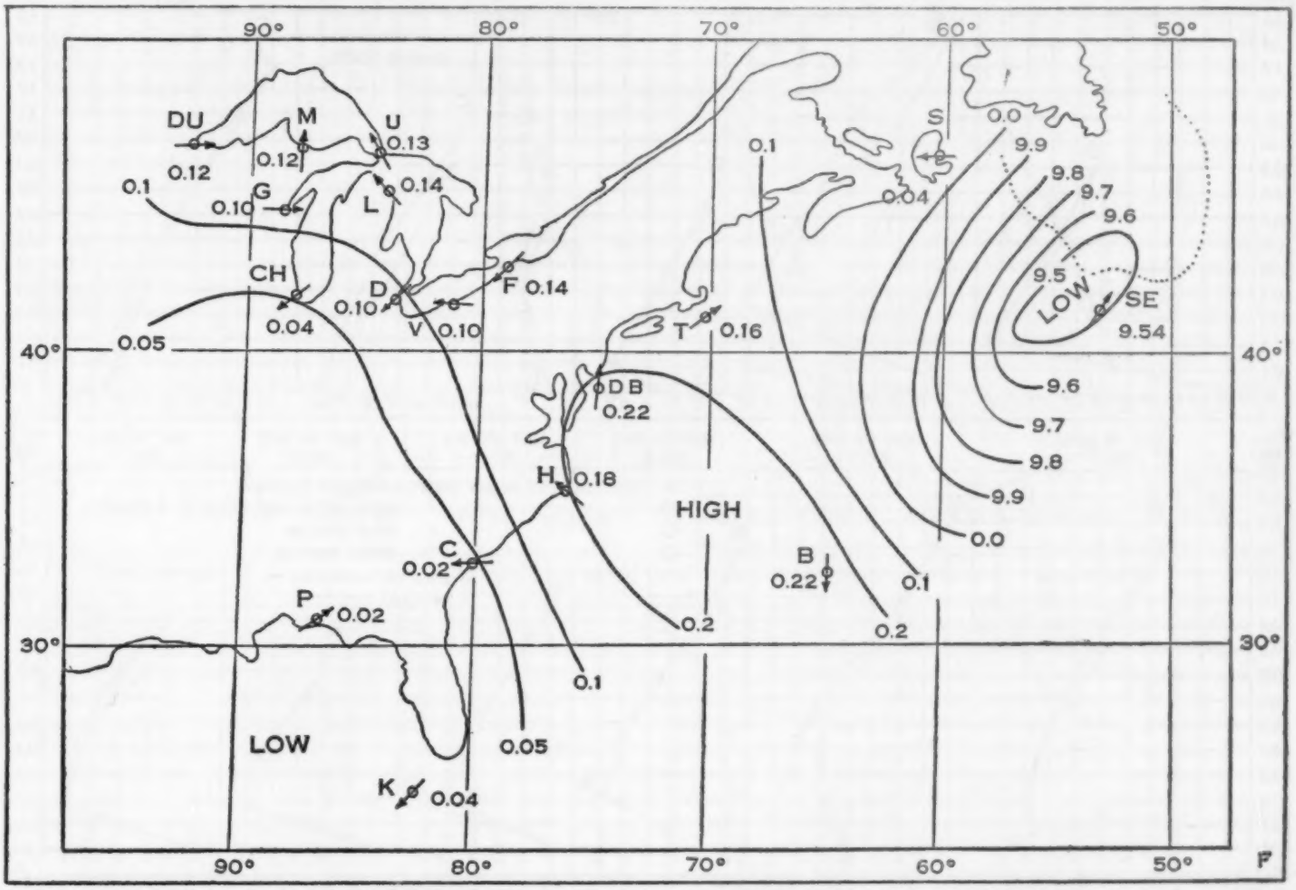

FIG. 10.—*Seneca*, June 28, 1915, 9 p. m. Winds for Tuesday and Wednesday, North Atlantic coast: Moderate southwest winds; Middle Atlantic coast: Moderate south winds.

The forecasts for the various coasts were copied each night that reports were available; but, as the ship was during much of the time more than 500 miles from shore, these forecasts, intended primarily for the coastal waters, were not especially helpful.

The maps, however, aided materially in the understanding of the weather changes, and it is thought that if more captains of vessels sailing the North Atlantic knew these maps by personal experience many who have looked upon the reports as intended for or valuable to some one else rather than themselves would come to look upon them as valuable personal helps.

FREE-AIR CONDITIONS OBSERVED BY MEANS OF KITE FLIGHTS ON THE U. S. C. G. CUTTER "SENECA," MAY AND JUNE, 1915.

The 27 flights by means of which good upper air records were obtained reached an average height of 1,054 meters above sea level. The altitude of the instrument shelter, 9 meters above sea, is the altitude of the base station for which data are given in the tables. All observations of surface conditions taken elsewhere on the ship have been reduced to this level. The records, being to low elevations, have been reduced in considerable detail. The position of the ship during any flight, whether in the Labrador current, in coastal waters, in the Gulf Stream, or in mixed waters, was carefully noted. Observations of the temperature and salinity of the sea water served to show these positions. Figure 3, page 14, shows the geographical position and the date of each flight. The data obtained in each flight are shown in detail in Table 3. The temperature-altitude relation has been charted in figures 11 and 12. The four different types of temperature gradient shown are characteristic and have been marked *A*, *B*, *C*, and *D*. Those marked *A* were observed over the Labrador current; *B*, over the coastal waters; *C*, over the Gulf Stream; *D*, over mixed waters. Means of the gradients marked *A*, *B*, *C*, and *D*, respectively, are shown in figure 13. The means of groups *A* and *B* resemble each other rather closely. So also do the temperatures and salinities of the waters over which they were observed.

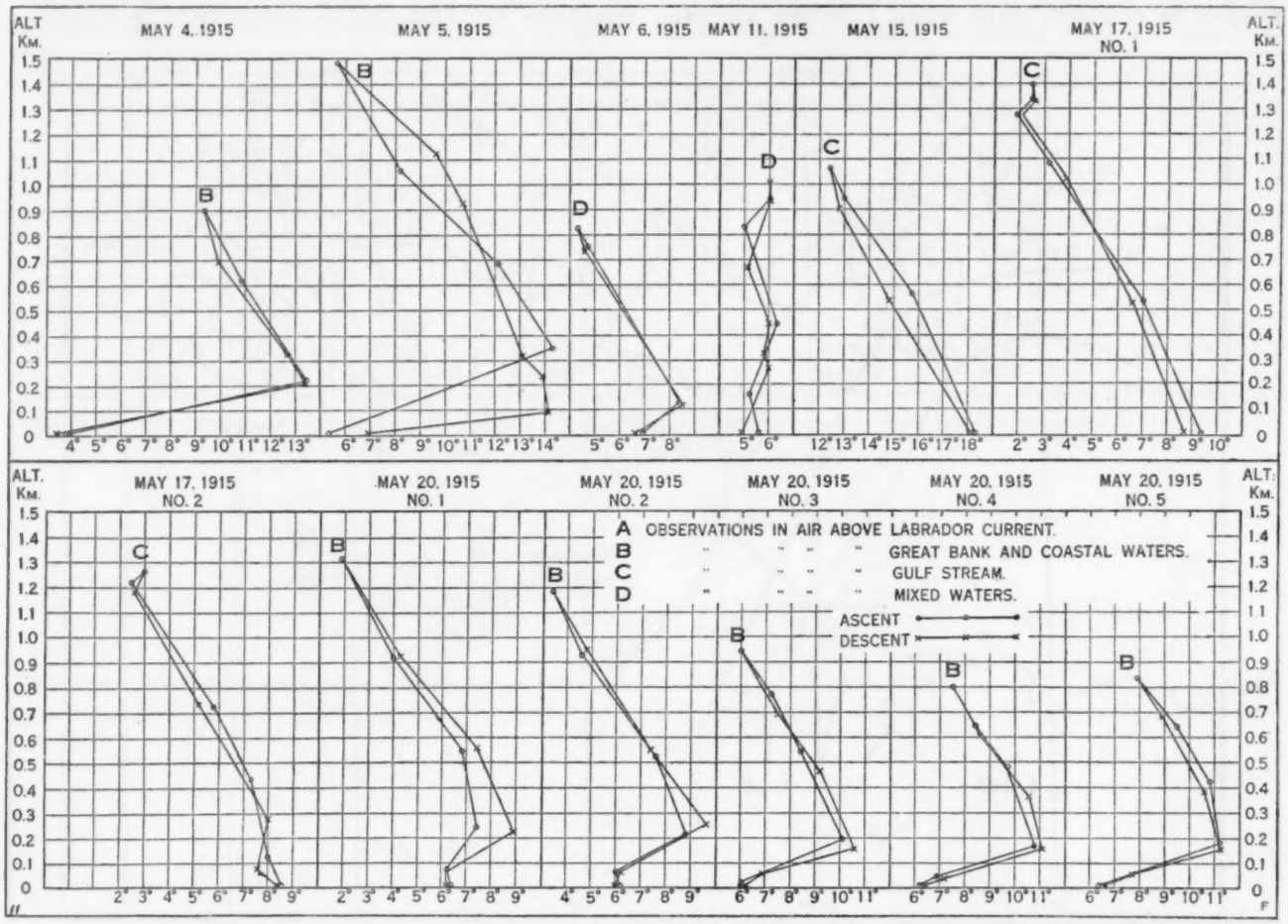

FIG. 11.—Vertical temperature gradients, °C., obtained by means of kites flown from the deck of the U. S. Coast Guard cutter *Seneca*, May, 1915.

The air resting upon the water's surface has the same temperature as the water with which it is in contact. When this water is relatively cold, as in the case of the Labrador current and coastal waters, there is a marked increase in air temperature with altitude for the first two or three hundred meters. When the surface water is relatively warm, as in the Gulf Stream, the temperature falls with altitude. Over mixed waters, i. e., waters

located between the Labrador current and the Gulf Stream, but not belonging to either, the temperature gradient is likely to vary with altitude as far up as our observations in this region go.

Peculiarities in some of the observations which tend to influence the means and are in themselves of interest should be noted. In the observation of May 5, rain during the descent of the kite had the effect of lowering the point of maximum temperature and of lowering the value of the gradient above this point. The observation of May 11, made in a dense fog, is typical. Temperature conditions are nearly isothermal. The observations of June 10 were made in a fog, the depth of which seemed to decrease to one-half kilometer during the period of observation.

In general the wind force and direction conform well to the pressure distribution as shown on the marine charts for the months of May and June. It is not so easy to compare temperatures observed under different types of air-pressure distribution, because the observations are not suitably distributed in time or in space for such comparison. The temperature distribution in the low levels explored seems to be governed by local conditions. This is well shown in figure 13. Five successive flights were made over coastal waters on May 20, and figure 14 shows the temperature distribution during that

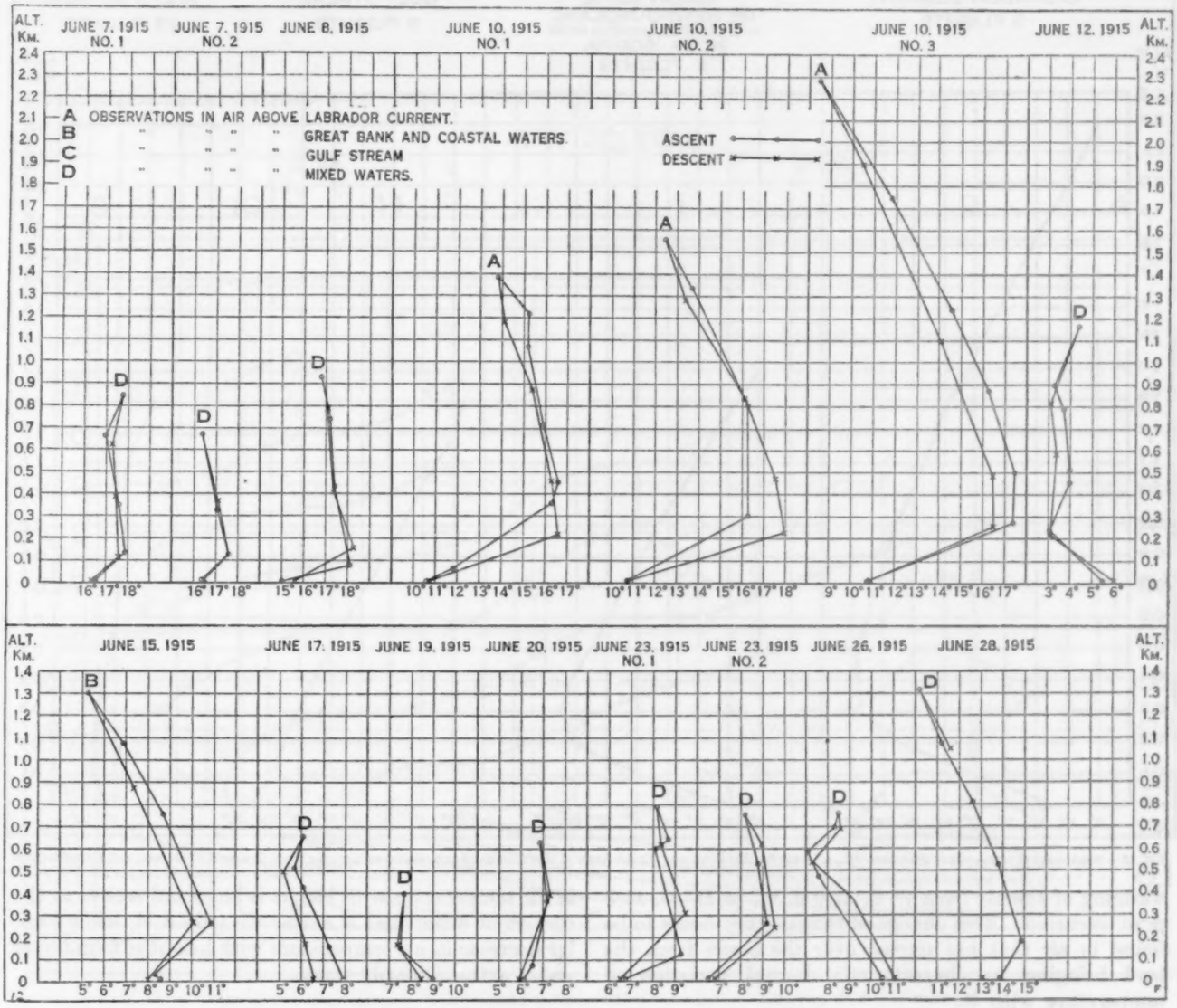

FIG. 12.—Vertical temperature gradients, °C., obtained by means of kites flown from the deck of the U. S. Coast Guard cutter *Seneca*, June, 1915.

part of the day in which explorations were made. The day was clear. The change of temperature of the air in contact with the water is less than a degree during the period of observation, while at the 200-meter level a warming of the air from 7° C. at 9 a. m. to 11° C. at 3 p. m. occurred. This change of temperature seems to be found in air that has moved over the ocean from the land bringing its characteristic diurnal variation of temperature with it.

It appears that cooling and heating effects of peculiarly tempered surface waters do not extend above the 300-meter level and usually not to that height, according to these observations. It is also apparent that increase in air temperature with height is large and sets in at the surface of water that is extraordinarily cold, while similar decrease in air temperature with height is found over water extraordinarily warm.

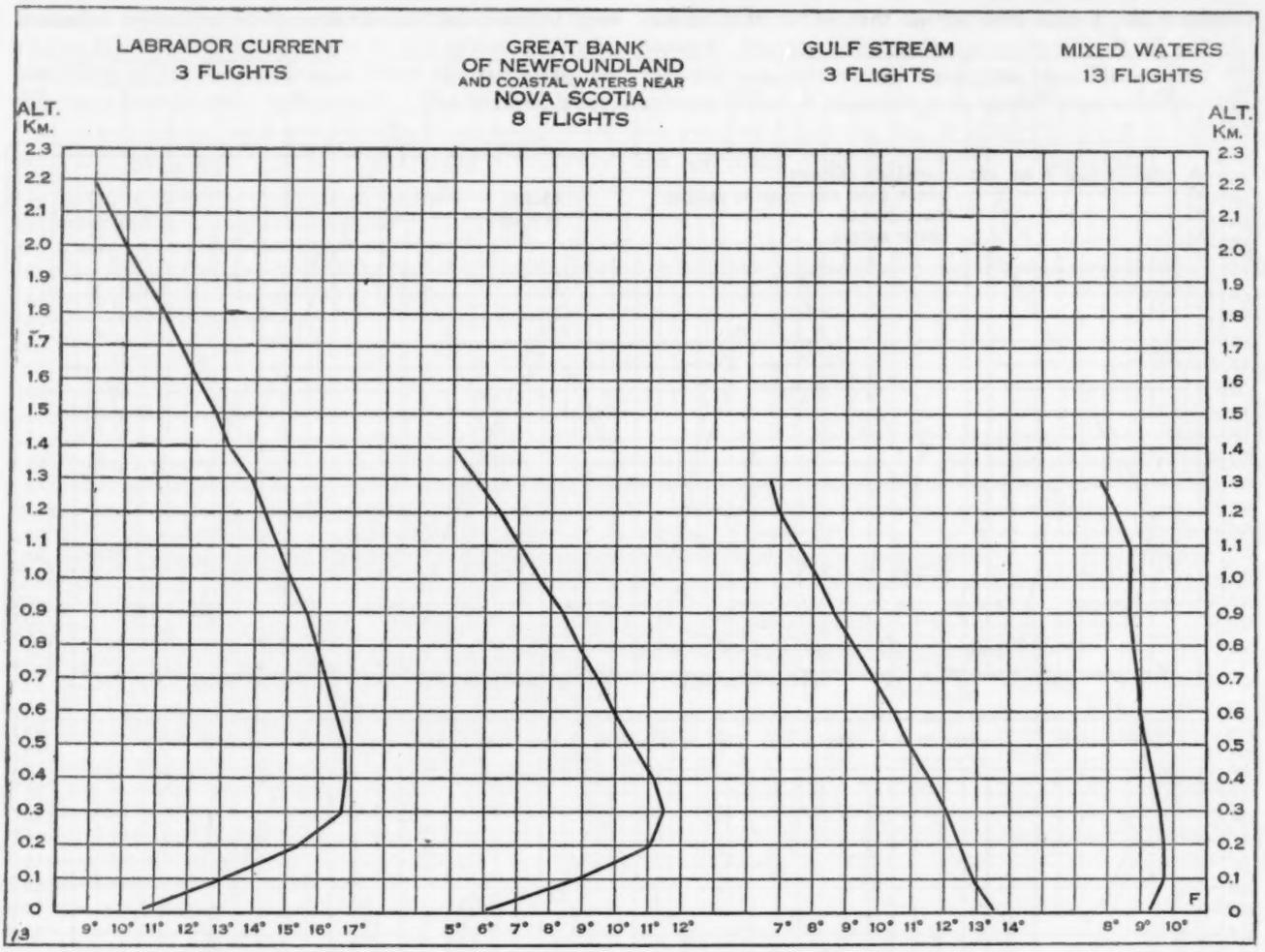

FIG. 13.—Mean vertical temperature gradients, °C., over the Labrador current; Great Bank of Newfoundland and coastal waters near Nova Scotia; Gulf Stream; and mixed waters.

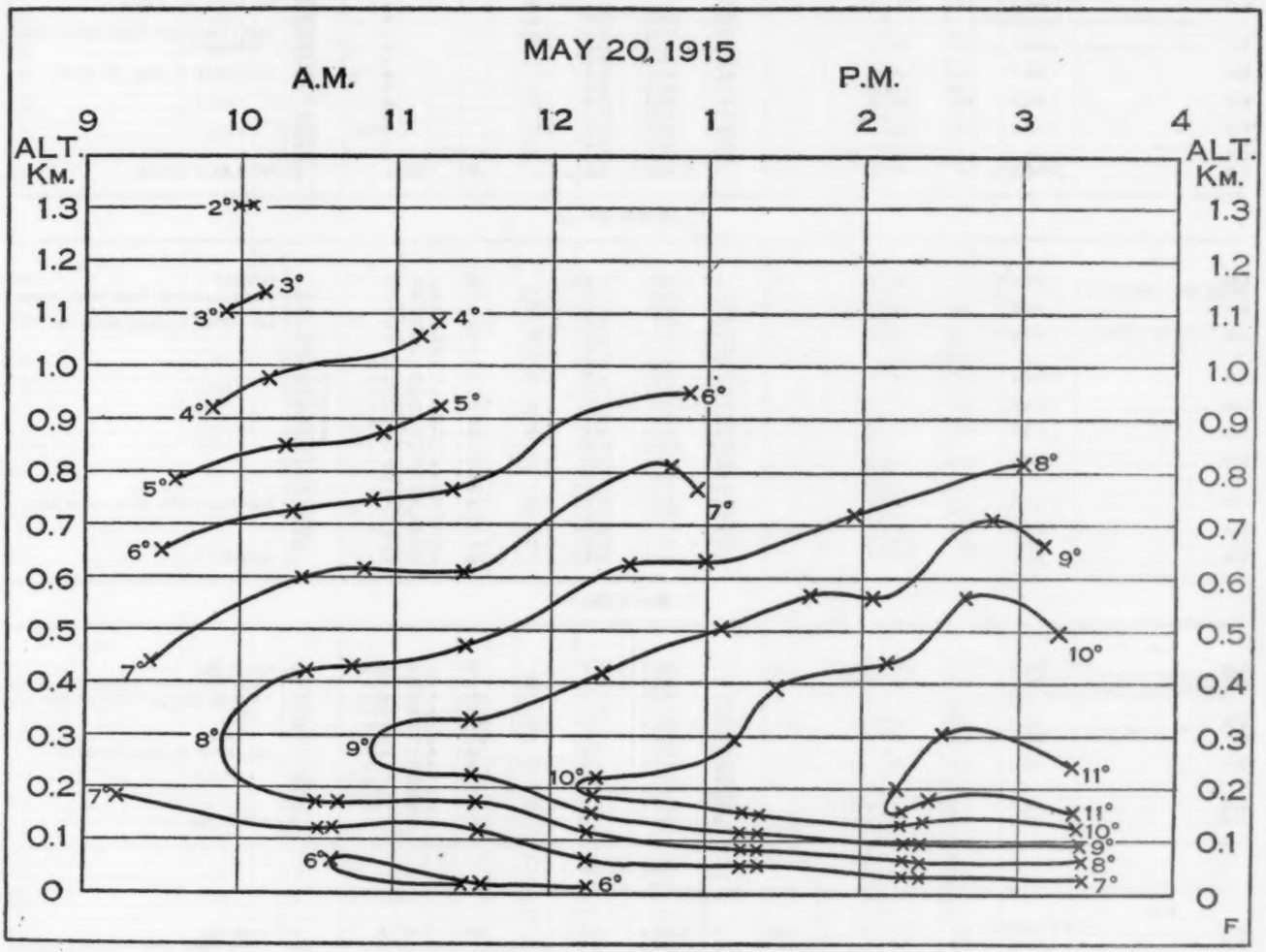

FIG. 14. Free-air temperatures, °C., over coastal waters near Nova Scotia (lat. 44° 15′ N., long. 62° 15′ W.), May 20, 1915.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca.

May 4, 1915.

Surface.						At different heights above sea.								
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.	Potential.	Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		10^3 *ergs.*	
5:30	1,005.3	3.8	98	s.	8.0*	9	1,005.3	3.8		98	7.86	s.	9	7/10 A.St., Light fog.
5:45	1,005.3	3.5	98	s.		227	979.0	13.4	−4.40			w.	223	Fog layer very shallow.
						250	976.2	13.3				w.	245	
						500	947.4	11.6				w.	490	Flight made over Great Banks, water 32 fathoms.
5:57	1,005.4	3.6	98	s.		620	934.5	10.8	0.66			w.	608	
						750	920.0	10.2				w.	735	
6:05	1,005.4	3.6	98	s.		902	903.3	9.3	0.40			w.	884	Lat., 43° 41′ N., long., 50° 24′ W.
						750	920.0	9.8				w.	735	
6:11	1,005.6	3.5	98	s.		691	926.6	9.9	0.77			w.	678	
						500	947.4	11.4				w.	490	
6:19	1,005.6	3.5	98	s.		326	967.9	12.7	0.61			wsw.	320	
						250	976.2	13.2				w.	245	
6:23	1,005.7	3.4	98	s.		212	981.2	13.4	−4.93			w.	208	
6:35	1,005.8	3.4	98	s.		9	1,005.8	3.4		98	7.64	s.	9	6/10 A.St., Light fog.
May 5, 1915.														
P. M.														
4:20	1,001.7	5.3	93	s.	7.2*	9	1,001.7	5.3		93	8.29	s.	9	10/10 St.
						250	973.2	11.8		80	11.07	s.	245	Flight made over Great Banks water.
4:23	1,001.6	5.3	93	s.		349	961.6	14.3	−2.65	76	12.39	s.	342	
						500	944.3	13.3		76	11.61	s.	490	Lat., 42° 36′ N., long., 49° 57′ W.
4:28	1,001.4	5.4	93	s.		685	923.9	12.1	0.65	76	10.73	s.	672	
						750	916.6	11.4		80	10.78	s.	735	
						1,000	889.6	8.8		92	10.42	ssw.	980	
4:41	1,001.3	5.7	95	s.		1,054	883.7	8.2	1.06	95	10.33	ssw.	1,033	
						1,250	863.1	7.0		98	9.82	ssw.	1,225	
4:56	1,000.8	6.2	96	s.		1,488	838.1	5.6	0.85	100	9.10	ssw.	1,459	
						1,250	862.8	8.2		95	10.33	ssw.	1,225	
5:19	1,000.4	6.6	98	s.		1,123	876.0	9.6	0.55	93	11.11	s.	1,101	
						1,000	888.9	10.3		80	10.02	s.	980	
5:22	1,000.3	6.6	99	s.		924	897.0	10.7	0.40	72	9.27	s.	906	
						750	915.6	11.4		74	9.98	s.	735	
						500	943.0	12.4		76	10.94	s.	490	
5:28	1,000.0	6.7	100	s.		318	963.9	13.1	0.89	78	11.76	s.	312	Rain from 5:27 p. m. to end of flight.
						250	971.2	13.7		90	14.11	s.	245	
5:34	999.9	6.8	100	s.		239	972.8	13.8	0.21	92	14.52	s.	234	
5:36	999.6	6.8	100	s.		94	989.4	14.1	−8.47	80	12.87	s.	92	
5:40	999.4	6.9	100	s.		9	999.4	6.9		100	9.95	s.	9	10/10 St.
May 6, 1915.														
P. M.														
4:30	999.6	6.9	98	wsw.	7.2*	9	999.6	6.9		98	9.75	wsw.	9	8/10 St.Cu.
4:31	999.6	6.9	98	wsw.		133	984.6	8.4	−1.21	86	9.48	wsw.	130	Flight made over northern edge of Gulf Stream, approaching Labrador current.
						250	971.0	7.7		89	9.35	wsw.	245	
						500	941.7	6.2		94	8.91	wsw.	490	
4:35	999.6	6.9	98	wsw.		751	913.4	4.7	0.60	100	8.54	wsw.	736	
4:37	999.6	6.8	98	wsw.		830	904.5	4.3	0.40	100	8.31	wsw.	814	
						750	913.4	4.5		98	8.25	wsw.	735	Lat., 41° 55′ N., long., 49° 35′ W.
4:44	999.6	6.8	97	wsw.		731	915.6	4.6	0.64	98	8.31	wsw.	717	
						500	941.7	6.2		91	8.63	wsw.	490	
						250	971.0	7.7		84	8.83	wsw.	245	
4:52	999.7	6.7	97	wsw.		126	985.7	8.5	−1.62	82	9.10	wsw.	123	
4:55	999.7	6.6	97	wsw.		9	999.7	6.6		97	9.46	wsw.	9	10/10 St. Cu.
May 11, 1915.														
P. M.														
3:25	1,012.5	5.6	100	w.	4.5*	9	1,012.5	5.6		100	9.10	w.	9	Dense fog.
3:26	1,012.5	5.6	100	w.		168	993.0	5.2	0.25			w.	165	Flight made over Labrador current, but close to Gulf Stream.
						250	982.9	5.6				w.	245	
3:28	1,012.5	5.6	100	w.		444	960.0	6.3	−0.40			w.	435	
						500	953.0	6.1				w.	490	
						750	924.2	5.2				w.	735	Lat., 42° 31′ N., long., 49° 01′ W.
3:31	1,012.4	5.5	100	w.		835	915.0	5.0	0.33			w.	819	
3:38	1,012.4	5.3	100	w.		941	903.8	6.0	−0.94			w.	923	
						1,000	896.9	6.0				w.	980	
3:40	1,012.4	5.3	100	w.		1,013	895.4	6.0	0.00			w.	993	
						1,000	896.9	6.0				w.	980	
3:44	1,012.4	5.2	100	w.		941	903.8	6.0	−0.33			w.	923	
						750	924.2	5.4				w.	735	
3:48	1,012.3	5.1	100	w.		669	933.7	5.1	0.40			w.	656	
						500	953.0	5.7				w.	490	
3:51	1,012.3	5.0	100	w.		442	960.0	6.0	−0.18			w.	433	
3:53	1,012.3	5.0	100	w.		333	972.8	5.8	0.33			w.	327	
3:58	1,012.3	4.9	100	w.		273	980.0	6.0	−0.42			w.	268	
						250	982.9	5.9				w.	245	
4:00	1,012.3	4.9	100	w.		9	1,012.3	4.9		100	8.66	w.	9	Dense fog.

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

May 15, 1915.

Surface.						At different heights above sea.								Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.	Potential.	
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		10^5 *ergs.*	
3:25	1,006.2	18.3	94	wsw.	8.9*	9	1,006.2	18.3	.....	94	19.77	wsw.	9	10/10 St. Cu.
						250	977.6	17.2	.....			wsw.	245	Light rain during flight.
						500	949.5	16.0	.....			wsw.	490	
3:33	1,006.1	18.3	96	wsw.	.....	567	942.5	15.7	0.47	.....	.....	wsw.	556	Flight made over Gulf Stream.
						750	922.3	14.4	.....			wsw.	735	
3:37	1,006.1	18.3	96	wsw.	.....	946	901.4	13.0	0.71	.....	.....	wsw.	927	Lat. 41° 10′ N., long. 50° 34′ W.
						1,000	895.2	12.7	.....			wsw.	980	
3:53	1,005.8	18.2	96	wsw.	.....	1,064	888.3	12.4	0.38	.....	.....	wsw.	1,043	
						1,000	895.2	12.6	.....			wsw.	980	
4:02	1,005.8	18.2	97	wsw.	.....	902	905.4	12.8	0.55	.....	.....	wsw.	884	
						750	921.9	13.6	.....			wsw.	735	
4:07	1,005.8	18.2	97	wsw.	.....	538	945.3	14.8	0.62	.....	.....	wsw.	527	
						500	949.3	15.0	.....			wsw.	490	
						250	977.4	16.6	.....			wsw.	245	
4:25	1,005.7	18.1	97	wsw.	.....	9	1,005.7	18.1	.....	97	20.15	wsw.	9	10/10, St.Cu.

May 17, 1915 (No. 1).

P. M.														
2:19	1,014.9	9.4	84	wnw.	8.9*	9	1,014.9	9.4	.....	84	9.90	wnw.	9	Few Cl.
						250	985.4	8.2	.....			wnw.	245	Flight over Gulf Stream, near mixed water.
						500	956.1	7.1	.....			wnw.	490	
2:28	1,014.9	9.3	85	wnw.	.....	538	952.0	7.0	0.45	.....	.....	wnw.	527	
						750	927.2	5.4	.....			wnw.	735	Lat. 42° 22′ N., long. 54° 28′ W.
						1,000	899.2	3.8	.....			wnw.	980	
2:38	1,014.9	9.2	86	wnw.	.....	1,082	890.5	3.2	0.70	.....	.....	wnw.	1,061	
						1,250	871.9	2.0	.....			wnw.	1,225	
2:50	1,014.9	9.0	87	wnw.	.....	1,277	869.2	1.9	0.67	.....	.....	wnw.	1,252	
3:02	1,014.9	8.9	88	wnw.	.....	1,336	862.9	2.5	−1.02	.....	.....	wnw.	1,310	
3:05	1,014.9	8.9	89	wnw.	.....	1,394	856.8	2.5	0.07	.....	.....	wnw.	1,367	
3:08	1,014.9	8.9	89	wnw.	.....	1,324	864.1	2.6	−1.06	.....	.....	wnw.	1,298	
3:12	1,014.9	8.9	90	wnw.	.....	1,277	869.0	2.1	0.71	.....	.....	wnw.	1,252	
						1,250	871.9	2.2	.....			wnw.	1,225	
3:22	1,015.0	8.8	91	wnw.	.....	1,024	896.9	3.9	0.54	.....	.....	wnw.	1,004	
						1,000	899.2	4.0	.....			wnw.	980	
						750	927.2	5.4	.....			wnw.	735	
3:36	1,015.2	8.7	92	wnw.	.....	527	953.2	6.6	0.41	.....	.....	wnw.	517	
						500	956.1	6.7	.....			wnw.	490	
						250	985.6	7.7	.....			wnw.	245	
3:42	1,015.2	8.7	92	wnw.	.....	9	1,015.2	8.7	.....	92	10.35	wnw.	9	Few Cl.

May 17, 1915 (No. 2).

P. M.														
4:07	1,015.3	8.6	92	wnw.	7.2*	9	1,015.3	8.6	.....	92	10.28	wnw.	9	Few Cl., Few Cu.
4:09	1,015.3	8.6	92	wnw.	.....	126	1,001.0	8.0	0.51	.....	.....	wnw.	123	Flight made over Gulf Stream, but nearer mixed water than first flight.
						250	986.1	7.7	.....			wnw.	245	
4:11	1,015.3	8.6	92	wnw.	.....	434	964.5	7.3	0.23	.....	.....	wnw.	426	
						500	956.4	6.9	.....			wnw.	490	
4:16	1,015.3	8.6	92	wnw.	.....	723	931.0	5.8	0.52	.....	.....	wnw.	709	Lat. 42° 24′ N., long. 54° 35′ W.
						750	928.0	5.6	.....			wnw.	735	
						1,000	900.0	3.9	.....			wnw.	980	
4:25	1,015.3	8.5	92	wnw.	.....	1,219	876.0	2.5	0.67	.....	.....	wnw.	1,195	
						1,250	872.0	2.9	.....			wnw.	1,225	
4:29	1,015.3	8.5	92	wnw.	.....	1,263	871.0	3.0	−0.81	.....	.....	wnw.	1,238	
						1,250	872.0	2.9	.....			wnw.	1,225	
4:33	1,015.3	8.5	92	wnw.	.....	1,180	880.0	2.6	0.58	.....	.....	wnw.	1,157	
						1,000	900.0	3.6	.....			wnw.	980	
						750	928.0	5.1	.....			wnw.	735	
4:44	1,015.3	8.5	92	wnw.	.....	734	929.7	5.2	0.61	.....	.....	wnw.	720	
						500	956.4	6.6	.....			wnw.	490	
4:50	1,015.3	8.4	92	wnw.	.....	274	983.3	8.0	−0.20	.....	.....	wnw.	269	
						250	986.1	8.0	.....			wnw.	245	
4:52	1,015.3	8.4	92	wnw.	.....	77	1,007.0	7.6	1.18	.....	.....	wnw.	75	Few Cl., Few Cu.
4:53	1,015.3	8.4	92	wnw.	.....	9	1,015.3	8.4	.....	92	10.14	wnw.	9	

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

May 20, 1915 (No. 1).

Surface.						At different heights above sea.								
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	Δt / 100 m.	Humidity.		Wind.	Potential.	Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
A. M.	*mb.*	°C.	%		*m. p. s.*	*m.*	*mb.*	°C.		%	*mb.*		*10⁶ ergs.*	
9:11	1,013.9	6.4	92	w.	7.2*	9	1,013.9	6.4	.....	92	8.84	w.	9	Few Cl. St., Few Cu.
9:14	1,013.9	6.4	92	w.	.....	78	1,005.6	6.2	0.29	.....	.....	wnw.	76	Flight made over coastal waters near Nova Scotia. Lat., 44° 08′ N.; long., 61° 50′ W.
9:15	1,013.9	6.4	92	w.	.....	249	984.6	7.4	−0.70	.....	.....	wnw.	244	
						500	955.0	6.9	.....	.....	.....	wnw.	490	
9:27	1,013.9	6.4	92	w.	.....	545	949.9	6.8	0.20	.....	.....	wnw.	534	
						750	926.2	5.2	.....	.....	.....	wnw.	735	
9:49	1,013.9	6.4	92	w.	.....	919	907.6	4.0	0.75	.....	.....	wnw.	901	
						1,000	898.3	3.5	.....	.....	.....	wnw.	980	
						1,250	871.1	2.2	.....	.....	.....	wnw.	1,225	
10:03	1,013.9	6.4	92	w.	.....	1,317	863.9	1.9	0.56	.....	.....	wnw.	1,291	
						1,250	871.1	2.3	.....	.....	.....	wnw.	1,225	
						1,000	898.3	3.8	.....	.....	.....	wnw.	980	
10:14	1,014.1	6.3	92	w.	.....	922	907.6	4.3	0.85	.....	.....	wnw.	904	
						750	926.2	5.8	.....	.....	.....	wnw.	735	
10:25	1,014.1	6.3	92	w.	.....	559	948.6	7.4	0.45	.....	.....	wnw.	548	
						500	955.0	7.6	.....	.....	.....	wnw.	490	
						250	984.5	8.8	.....	.....	.....	wnw.	245	
10:29	1,014.1	6.3	92	w.	.....	226	987.6	8.9	−1.70	.....	.....	wnw.	222	
10:30	1,014.1	6.2	92	w.	.....	67	1,007.0	6.2	0.00	.....	.....	wnw.	66	
10:31	1,014.1	6.2	92	w.	.....	9	1,014.1	6.2	8.72	92	.....	w.	9	Few Cl. St., Few Cu.

May 20, 1915 (No. 2).

A. M.														
10:35	1,014.1	6.2	92	w.	7.2*	9	1,014.1	6.2	.....	92	8.72	w.	9	Few Cl.St. Few Cu.
10:36	1,014.1	6.2	92	w.	.....	67	1,007.0	6.0	0.34	.....	.....	wnw.	66	Flight made over coastal waters near Nova Scotia. Lat., 44° 10′ N.; long., 62° 03′ W.
10:39	1,014.1	6.2	92	w.	.....	215	989.0	8.8	−1.89	.....	.....	wnw.	211	
						250	984.7	8.6	.....	.....	.....	wnw.	245	
						500	955.3	7.7	.....	.....	.....	wnw.	490	
10:46	1,014.1	6.2	93	w.	.....	523	952.8	7.6	0.39	.....	.....	wnw.	513	
						750	926.9	5.9	.....	.....	.....	wnw.	735	
11:01	1,014.2	6.1	94	w.	.....	923	907.6	4.6	0.75	.....	.....	wnw.	905	
						1,000	899.1	4.2	.....	.....	.....	wnw.	980	
11:11	1,014.2	6.1	94	w.	.....	1,182	879.0	3.4	0.53	.....	.....	wnw.	1,159	
						1,000	899.1	4.5	.....	.....	.....	wnw.	980	
11:18	1,014.2	6.1	94	w.	.....	948	904.9	4.8	0.65	.....	.....	wnw.	929	
						750	926.9	6.0	.....	.....	.....	wnw.	735	
11:27	1,014.2	6.0	94	w.	.....	549	949.9	7.4	0.74	.....	.....	wnw.	538	
						500	955.3	7.7	.....	.....	.....	wnw.	490	
11:30	1,014.2	6.0	94	w.	.....	252	984.6	9.6	−1.85	.....	.....	wnw.	247	
11:32	1,014.2	6.0	94	w.	.....	68	1,007.0	6.2	−0.34	.....	.....	wnw.	67	
11:33	1,014.2	6.0	94	w.	.....	9	1,014.2	6.0	.....	94	8.79	w.	9	1/10 Cl.St.,Few Cu.

May 20, 1915 (No. 3).

P. M.														
12:13	1,014.2	6.0	94	w.	7.2*	9	1,014.2	6.0	.....	94	8.79	w.	9	2/10 Cl.St.,Few Cu.
12:14	1,014.2	5.9	94	w.	.....	22	1,012.6	6.0	0.00	.....	.....	w.	22	Flight made over coastal waters near Nova Scotia. Lat., 44° 14′ N.; long., 62° 15′ W.
12:16	1,014.2	5.9	94	w.	.....	192	992.0	10.1	−2.41	.....	.....	w.	188	
						250	985.1	9.8	.....	.....	.....	w.	245	
						500	955.7	8.6	.....	.....	.....	wnw.	490	
12:24	1,014.2	6.0	93	w.	.....	545	950.6	8.4	0.48	.....	.....	wnw.	534	
						750	927.4	7.3	.....	.....	.....	wnw.	735	
12:43	1,014.2	6.0	92	w.	.....	773	924.8	7.2	0.53	.....	.....	wnw.	758	
12:53	1,014.2	6.1	93	w.	.....	941	906.2	6.0	0.65	.....	.....	wnw.	923	
						750	927.4	7.1	.....	.....	.....	wnw.	735	
12:59	1,014.2	6.1	93	w.	.....	690	934.1	7.5	0.74	.....	.....	wnw.	677	
						500	955.7	8.9	.....	.....	.....	w.	490	
1:08	1,014.2	6.1	94	w.	.....	461	960.4	9.2	0.46	.....	.....	w.	452	
						250	985.1	10.2	.....	.....	.....	w.	245	
1:13	1,014.2	6.1	94	w.	.....	156	996.3	10.6	−3.78	.....	.....	w.	153	
1:14	1,014.2	6.1	94	w.	.....	58	1,008.3	6.9	−1.43	.....	.....	w.	57	
1:15	1,014.2	6.2	94	w.	.....	9	1,014.2	6.2	.....	94	8.91	w.	9	3/10 Cl.St., 1/10 A.Cu.,Few Cu.

May 20, 1915 (No. 4).

P. M.														
1:18	1,014.2	6.2	94	w.	7.2*	9	1,014.2	6.2	.....	94	8.91	w.	9	2/10 Cl.St.,Few Cu.
1:19	1,014.2	6.1	94	w.	.....	46	1,009.7	6.9	−1.89	.....	.....	w.	45	Flight made over coastal waters near Nova Scotia. Lat., 44° 14′ N.; long., 62° 20′ W.
1:21	1,014.2	6.2	94	w.	.....	168	994.9	10.8	−3.20	.....	.....	w.	165	
						250	984.8	10.5	.....	.....	.....	w.	245	
1:27	1,014.2	6.2	94	w.	.....	474	959.0	9.7	0.36	.....	.....	w.	465	
						500	955.8	9.5	.....	.....	.....	w.	490	
1:48	1,014.2	6.3	94	w.	.....	644	939.6	8.4	0.76	.....	.....	w.	631	
						750	927.8	7.8	.....	.....	.....	w.	735	
1:58	1,014.2	6.3	94	w.	.....	799	922.1	7.5	0.58	.....	.....	w.	783	
						750	927.8	7.8	.....	.....	.....	w.	735	
2:03	1,014.2	6.3	94	w.	.....	609	943.7	8.6	0.81	.....	.....	w.	597	
						500	955.8	9.4	.....	.....	.....	w.	490	
2:12	1,014.2	6.4	94	w.	.....	365	971.7	10.6	0.24	.....	.....	w.	358	
						250	984.8	10.8	.....	.....	.....	w.	245	
2:15	1,014.2	6.4	94	w.	.....	156	996.4	41.1	−3.20	.....	.....	w.	153	
2:16	1,014.2	6.4	94	w.	.....	34	1,011.2	7.2	−3.20	.....	.....	w.	33	
2:17	1,014.2	6.4	94	w.	.....	9	1,014.2	6.4	.....	94	9.03	w.	9	3/10 Cl.St.,1/10 A.Cu.,Few Cu.

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

May 20, 1915 (No. 5).

Surface.						At different heights above sea.								Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	Δt / 100 m.	Humidity.		Wind.	Potential.	
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*10⁶ ergs.*	
2:20	1,014.2	6.4	92	w.	7.2*	9	1,014.2	6.4	.....	92	8.84	w.	9	4/10 A.Cu., Few Cu.
2:22	1,014.2	6.4	92	w.	.....	46	1,009.7	7.4	−2.70	.....	.....	w.	45	Flight made over coastal waters near Nova Scotia. Lat. 44° 18′ N.; long. 6° 31′ W.
2:24	1,014.2	6.4	92	w.	.....	181	993.4	11.2	−2.81	.....	.....	w.	178	
						250	985.0	11.1	.....	.....	.....	w.	245	
2:31	1,014.2	6.5	92	w.	.....	426	964.6	10.8	0.16	.....	.....	w.	418	
						500	955.6	10.3	.....	.....	.....	w.	490	
2:41	1,014.2	6.5	92	w.	.....	645	939.6	9.5	0.59	.....	.....	w.	632	
						750	927.6	8.6	.....	.....	.....	w.	735	
3:02	1,014.2	6.6	92	w.	.....	837	918.1	7.9	0.74	.....	.....	w.	821	
						750	927.6	8.4	.....	.....	.....	w.	735	
3:09	1,014.2	6.6	92	w.	.....	680	935.6	8.9	0.58	.....	.....	w.	667	
						500	955.6	9.9	.....	.....	.....	w.	490	
3:18	1,014.2	6.6	92	w.	.....	388	968.9	10.6	0.26	.....	.....	w.	380	
						250	985.0	11.0	.....	.....	.....	w.	245	
3:22	1,014.2	6.6	92	w.	.....	156	996.4	11.2	−3.61	.....	.....	w.	153	
3:24	1,014.2	6.6	92	w.	.....	59	1,008.3	7.7	−2.20	.....	.....	w.	58	
3:25	1,014.2	6.6	92	w.	.....	9	1,01.24	9.6	.....	92	8.97	w.	9	8/10 A.Cu.

June 7, 1915 (No. 1).

P. M.														
2:51	1,021.7	16.5	100	se.	4.5*	9	1,021.7	16.5	.....	100	18.77	se.	9	10/10 A.St., Light fog.
2:52	1,021.7	16.4	100	se.	.....	137	1,006.6	17.9	−1.09	100	20.51	se.	134	Flight made over Gulf Stream. Lat. 41° 15′ N.; long. 57° 26′ W.
						250	993.0	17.7	.....	100	20.25	sse.	245	
2:57	1,021.7	16.5	100	se.	.....	350	981.8	17.6	0.14	100	20.13	s.	343	
						500	964.4	17.3	.....	100	19.75	s.	490	
3:20	1,021.7	16.5	99	se.	.....	663	946.6	17.0	0.19	100	19.38	s.	650	
						750	942.3	17.4	.....	96	19.08	s.	735	
3:22	1,021.7	16.5	99	se.	.....	848	926.3	17.8	−0.33	91	18.55	s.	831	
						750	942.3	17.6	.....	90	18.12	s.	735	
3:29	1,021.7	16.5	99	se.	.....	627	950.6	17.3	0.08	88	17.38	s.	615	
						500	964.4	17.4	.....	90	17.88	s.	490	
3:36	1,021.7	16.4	99	se.	.....	388	977.4	17.5	0.04	91	18.20	s.	380	
						250	993.0	17.6	.....	94	18.92	s.	245	
3:42	1,021.7	16.4	99	sse.	.....	111	1,009.7	17.6	−1.18	97	19.53	s.	109	
3:43	1,021.7	16.4	98	sse.	.....	9	1,021.7	16.4	.....	98	18.28	sse.	9	10/10 A.St., Light fog.

June 7, 1915 (No. 2).

P. M.														
3:44	1,021.7	16.4	98	sse.	4.5*	9	1,021.7	16.4	.....	98	18.28	sse.	9	10/10 A.St., Light fog.
3:45	1,021.7	16.4	98	sse.	.....	125	1,008.1	17.6	−1.03	98	19.73	s.	122	Flight made over Gulf Stream. Lat. 41° 12′ N.; long. 57° 15′ W.
						250	992.9	17.2	.....	98	19.23	s.	245	
3:52	1,021.7	16.4	99	sse.	.....	325	984.6	17.1	0.17	98	19.11	ssw.	319	
						500	964.4	16.7	.....	98	18.63	ssw.	490	
4:06	1,021.7	16.4	100	sse.	.....	674	945.2	16.4	0.21	98	18.28	ssw.	661	
						500	964.4	16.8	.....	98	18.75	s.	490	
4:14	1,021.6	16.5	100	sse.	.....	361	980.4	17.1	0.21	98	19.11	sse.	354	
						250	992.9	17.4	.....	98	19.47	sse.	245	
4:17	1,021.6	16.5	100	sse.	.....	124	1,008.1	17.6	−0.96	98	19.73	sse.	122	
4:20	1,021.6	16.5	100	sse.	.....	9	1,021.6	16.5	.....	100	18.77	sse.	9	Dense fog.

June 8, 1915.

P. M.														
2:10	1,023.0	15.0	98	s.	4.5*	9	1,023.0	15.0	.....	98	16.71	s.	9	10/10 A.St., Light fog.
2:19	1,022.9	15.0	96	s.	.....	80	1,014.5	18.1	−4.37	95	19.73	sw.	78	Flight made over Gulf Stream. Lat. 42° 20′ N.; long. 53° 35′ W.
						250	994.4	17.7	.....	99	19.44	sw.	245	
2:24	1,022.9	15.1	95	s.	.....	434	973.4	17.4	0.20	99	19.67	wsw.	426	
						500	966.0	17.4	.....	97	19.27	wsw.	490	
2:40	1,022.9	15.3	94	s.	.....	735	939.9	17.2	0.07	92	18.05	wsw.	721	
						750	938.1	17.2	.....	92	18.05	wsw.	735	
2:51	1,022.7	15.4	91	s.	.....	930	918.3	16.8	0.21	92	17.60	wsw.	912	
2:54	1,022.7	15.5	91	s.	.....	783	934.3	17.1	0.08	92	17.94	wsw.	768	
						750	938.1	17.1	.....	92	17.94	wsw.	735	
						500	966.0	17.3	.....	93	18.37	sw.	490	
3:04	1,022.7	15.5	94	s.	.....	408	976.3	17.4	0.36	93	18.48	sw.	400	
						250	994.4	18.0	.....	94	19.40	ssw.	245	
3:09	1,022.7	15.5	96	s.	.....	156	1,005.4	18.3	−1.84	95	19.98	ssw.	153	
3:15	1,022.6	15.6	97	s.	.....	9	1,022.6	15.6	.....	97	17.19	s.	9	10/10 St., Light fog.

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

June 16, 1915 (No. 1).

Surface.						At different heights above sea.								
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.	Potential.	Remarks.
				Dir-	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		10^6 *ergs.*	
10:31	1,019.0	10.6	100	sw.	4.9*	9	1,019.0	10.6	.....	100	12.78	sw.	9	Dense fog.
10:32	1,019.0	10.7	100	sw.	.....	68	1,012.0	11.8	−2.03	100	13.84	sw.	67	Flight made over Great Banks water.
						250	990.1	14.6	.....	100	16.62	sw.	245	Lat. 44° 02′ N.; long. 50° 46′ W.
10:34	1,019.0	10.7	98	sw.	.....	357	977.8	16.3	−1.56	100	18.53	sw.	350	
10:42	1,019.0	10.7	97	sw.	.....	468	966.2	16.6	−0.30	100	18.89	wsw.	449	
						500	961.4	16.5	.....	100	18.77	wsw.	490	
10:49	1,019.0	10.7	96	sw.	.....	711	938.1	15.9	0.28	100	18.07	wsw.	697	
						750	934.0	15.8	.....	100	17.95	wsw.	735	
						1,000	906.5	15.3	.....	98	17.03	wsw.	980	
10:56	1,019.0	10.7	97	sw.	.....	1,071	899.2	15.2	0.19	97	16.75	wsw.	1,050	
11:11	1,018.9	10.7	95	sw.	.....	1,229	883.6	15.2	0.00	83	14.33	wsw.	1,196	
						1,250	880.0	14.9	.....	85	14.40	wsw.	1,225	
11:32	1,018.7	10.7	93	sw.	.....	1,388	865.9	13.8	0.48	96	15.15	wsw.	1,361	
						1,250	880.0	14.0	.....	96	15.34	wsw.	1,225	
11:47	1,018.7	10.7	92	sw.	.....	1,180	887.6	14.1	0.42	96	15.45	wsw.	1,157	
						1,000	906.5	14.8	.....	96	16.16	wsw.	980	
P. M.														
12:06	1,018.6	10.7	93	sw.	.....	872	920.4	15.4	0.22	96	16.80	wsw.	855	
						750	934.0	15.7	.....	96	17.13	wsw.	735	
						500	961.4	16.2	.....	97	17.87	wsw.	490	
12:18	1,018.5	10.7	99	sw.	.....	456	966.2	16.3	0.12	97	17.97	wsw.	447	
						250	990.1	16.6	.....	100	18.89	sw.	245	
12:24	1,018.5	10.7	100	sw.	.....	215	993.9	16.6	−2.86	100	18.89	sw.	211	
12:26	1,018.5	10.7	100	sw.	.....	9	1,018.5	10.7	.....	100	12.87	sw.	9	Dense fog.

June 16, 1915 (No. 2).

P. M.														
12:27	1,018.5	10.7	100	sw.	7.2*	9	1,018.5	10.7	.....	100	12.87	sw.	9	Dense fog.
						250	989.6	15.3	.....	100	17.38	sw.	245	Flight made over Great Banks water.
12:28	1,018.5	10.7	100	sw.	.....	302	983.7	16.3	−1.91	100	18.53	sw.	296	Lat. 44° 02′ N.; long. 50° 46′ W.
						500	960.9	16.3	.....	98	18.16	sw.	490	
						750	933.3	16.3	.....	96	17.79	wsw.	735	
12:43	1,018.5	10.6	99	sw.	.....	807	927.2	16.3	0.00	96	17.79	wsw.	791	
						1,000	906.1	15.3	.....	95	16.51	wsw.	980	
						1,250	879.6	14.2	.....	94	15.22	wsw.	1,225	
12:58	1,018.3	10.6	99	sw.	.....	1,336	871.0	13.7	0.49	93	14.58	wsw.	1,310	
						1,500	854.2	12.8	.....	88	13.01	wsw.	1,470	
1:15	1,018.3	10.6	100	sw.	.....	1,558	848.6	12.5	0.43	86	12.46	wsw.	1,527	
						1,500	854.2	12.7	.....	87	12.78	wsw.	1,470	
1:28	1,018.3	10.6	100	sw.	.....	1,278	877.4	13.4	0.63	90	13.83	wsw.	1,253	
						1,250	880.3	13.6	.....	89	13.87	wsw.	1,225	
						1,000	907.1	15.2	.....	84	14.51	wsw.	980	
1:41	1,018.3	10.7	100	sw.	.....	836	924.4	16.2	0.30	81	14.92	wsw.	820	
						760	934.2	16.5	.....	78	14.64	wsw.	735	
						500	960.9	17.5	.....	71	14.20	wsw.	490	
1:52	1,018.3	10.7	100	sw.	.....	470	964.8	17.6	0.17	71	14.29	wsw.	461	
						250	989.6	18.0	.....	68	14.04	wsw.	245	
1:59	1,018.3	10.7	100	sw.	.....	228	992.5	18.0	−3.33	68	14.04	wsw.	224	
2:03	1,018.3	10.7	100	sw.	.....	9	1,018.3	10.7	.....	100	12.87	sw.	9	9/10 St. Low dense fog.

June 16, 1915 (No. 3).

P. M.														
2:05	1,018.3	10.7	100	sw.	7.2*	9	1,018.3	10.7	.....	100	12.87	sw.	9	10/10 St. Low dense fog.
						250	989.5	16.7	.....	76	14.45	wsw.	245	Flight made over Great Banks water.
2:06	1,018.3	10.7	100	sw.	.....	276	986.6	17.4	−2.51	76	15.10	wsw.	271	Lat. 44° 02′ N.; long. 50° 46′ W.
2:17	1,018.2	10.7	100	sw.	.....	493	961.9	17.5	−0.05	70	14.00	wsw.	483	
						500	961.0	17.5	.....	70	14.00	wsw.	490	
						750	933.2	16.6	.....	72	13.60	wsw.	735	
2:26	1,018.2	10.7	100	sw.	.....	870	920.4	16.3	0.32	74	13.71	wsw.	853	
						1,000	905.8	15.7	.....	78	13.92	wsw.	980	
2:50	1,017.9	10.7	100	sw.	.....	1,238	881.0	14.6	0.46	84	13.96	wsw.	1,214	
						1,250	879.6	14.5	.....	84	13.87	wsw.	1,225	
						1,500	854.0	13.1	.....	78	11.76	wsw.	1,470	
3:15	1,017.8	10.7	99	sw.	.....	1,746	829.4	11.8	0.55	73	10.10	wsw.	1,711	
						2,000	804.4	10.2	.....	84	10.46	wsw.	1,960	
						2,250	780.3	8.7	.....	95	10.69	wsw.	2,205	
3:43	1,017.8	10.7	100	sw.	.....	2,285	777.2	8.5	0.56	96	10.66	wsw.	2,239	
						2,250	780.3	8.7	.....	96	10.80	wsw.	2,205	
						2,000	803.7	9.9	.....	96	11.71	wsw.	1,960	
4:16	1,017.6	10.7	100	sw.	.....	1,894	814.1	10.5	0.45	96	12.19	wsw.	1,856	
						1,750	828.0	11.2	.....	94	12.50	wsw.	1,715	
						1,500	853.0	12.3	.....	91	13.02	wsw.	1,470	
						1,250	878.9	13.4	.....	88	13.53	wsw.	1,225	
	1,017.6	10.7	100	sw.	.....	1,095	895.3	14.1	0.39	86	13.84	wsw.	1,074	
						1,000	905.1	14.5	.....	82	13.54	wsw.	980	
						750	932.3	15.4	.....	71	12.42	wsw.	735	
						500	959.5	16.4	.....	61	11.38	wsw.	490	
	1,017.4	10.8	100	sw.	.....	485	961.9	16.5	0.00	60	11.26	wsw.	475	
	1,017.4	10.8	100	sw.	.....	255	988.1	16.5	−2.32	80	15.02	wsw.	250	
						250	988.5	16.4	.....	80	14.92	wsw.	245	
5:07	1,017.3	10.8	100	sw.	.....	9	1,017.3	10.8	.....	100	12.95	sw.	9	9/10 St. Low dense fog.

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

June 12, 1915.

Surface.						At different heights above sea.								
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.	Potential.	Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		10^6 *ergs.*	
10:14	1,026.9	5.5	91	nne.	8.0*	9	1,026.9	5.5	.....	91	8.22	nne.	9	Few Cl.St.
10:16	1,026.9	5.5	91	nne.	.....	240	998.1	3.1	1.04	92	7.02	nne.	235	Flight made over Labrador Current, but not far from Gulf Stream. Lat. 44° 08′ N.; long. 45° 22′ W.
						250	996.9	3.1	.....	91	6.94	nne.	245	
10:18	1,026.9	5.5	91	nne.	.....	454	972.3	4.0	−0.42	78	6.34	nne.	445	
						500	965.5	4.0	.....	63	5.12	nne.	490	
10:24	1,026.9	5.5	92	nne.	.....	512	965.3	4.0	0.00	59	4.80	nne.	502	
						750	937.2	3.7	.....	59	4.70	nne.	735	
10:41	1,027.0	5.5	94	nne.	.....	793	932.5	3.7	0.11	59	4.70	nne.	778	
10:59	1,027.2	5.6	97	nne.	.....	898	920.6	3.3	0.38	59	4.57	nne.	880	
						1,000	908.8	3.7	.....	51	4.06	nne.	980	
11:19	1,027.2	5.7	93	nne.	.....	1,163	891.0	4.4	−0.40	39	3.26	nne.	1,140	
						1,000	908.8	3.8	.....	46	3.69	nne.	980	
11:33	1,027.2	5.9	92	nne.	.....	817	929.8	3.1	0.13	53	4.04	nne.	801	
						750	937.2	3.2	.....	53	4.08	nne.	735	
11:36	1,027.2	5.9	91	nne.	.....	584	956.9	3.4	−0.08	53	4.13	nne.	573	
						500	965.5	3.3	.....	53	4.10	nne.	490	
						250	996.9	3.1	.....	53	4.04	nne.	245	
11:45	1,027.2	6.0	90	nne.	.....	218	1,001.0	3.1	1.39	53	4.04	nne.	214	
11:48	1,027.2	6.0	90	nne.	.....	9	1,027.2	6.0	.....	90	8.42	nne.	9	1/10 Cl.St.

June 15, 1915.

A. M.														
9:24	1,021.4	8.6	96	ne.	8.9*	9	1,021.4	8.6	.....	96	10.72	ne.	9	9/10 A.Cu.
9:25	1,021.4	8.6	96	ne.	.....	33	1,018.5	8.3	1.25	92	10.07	ne.	32	Flight made over Great Banks.
						250	992.1	10.7	.....	93	11.97	ne.	245	
9:26	1,021.4	8.6	96	ne.	.....	267	990.2	10.9	−1.11	93	12.13	ne.	262	Lat. 43° 26′ N.; long. 50° 16′ W.
						500	962.8	9.8	.....	97	11.76	ne.	490	
						750	934.2	8.7	.....	100	11.25	ne.	735	
9:37	1,021.4	8.6	94	ne.	.....	755	933.8	8.7	0.45	100	11.25	ne.	740	
						1,000	906.3	7.3	.....	97	9.92	ne.	980	10/10 A.St.
10:38	1,021.6	8.3	95	ne.	.....	1,076	898.2	6.9	0.56	96	9.55	ne.	1,055	
						1,250	879.0	5.6	.....	96	8.74	ne.	1,225	
10:44	1,021.6	8.2	95	ne.	.....	1,307	873.0	5.3	0.58	96	8.55	ne.	1,281	
						1,250	879.0	5.6	.....	96	8.74	ne.	1,225	
						1,000	906.3	6.8	.....	96	9.48	ne.	980	Light rain from 10:50 until end of flight.
10:58	1,021.7	8.0	100	ne.	.....	874	920.5	7.4	0.45	96	9.89	ne.	857	
						750	934.2	8.0	.....	95	10.19	ne.	735	
						500	962.8	9.0	.....	91	10.45	ne.	490	
11:07	1,021.7	8.0	100	ne.	.....	269	990.2	10.1	−0.81	86	10.63	ne.	264	
						250	992.1	9.9	.....	87	10.61	ne.	245	
11:12	1,021.7	8.0	100	ne.	.....	9	1,021.7	8.0	.....	100	10.73	ne.	9	10/10 St.

June 17, 1915.

P. M.														
2:37	1,022.7	7.9	96	n.	8.9*	9	1,022.7	7.9	.....	96	10.22	n.	9	4/10 Cl.Cu., 4/10 A.Cu.
2:39	1,022.7	7.9	96	n.	.....	156	1,004.6	7.3	0.41	.....	.....	nne.	153	Flight made over mixed waters between Labrador Current and Gulf Stream.
						250	992.9	6.8	.....	.....	.....	nne.	245	
2:48	1,022.9	8.0	95	n.	.....	422	972.8	6.1	0.45	.....	.....	nne.	414	
						500	963.7	5.8	.....	.....	.....	nne.	490	
3:37	1,023.4	7.9	93	n.	.....	510	962.9	5.7	0.45	.....	.....	nne.	500	
3:56	1,023.7	7.7	94	n.	.....	654	946.2	6.1	−0.43	.....	.....	nne.	641	Lat. 43° 04′ N.; long. 49° 02′ W.
4:06	1,023.7	7.5	94	n.	.....	498	964.4	5.2	0.30	.....	.....	nne.	488	
						250	993.8	6.0	.....	.....	.....	nne.	245	
4:15	1,023.9	6.9	94	n.	.....	164	1,004.6	6.2	0.26	.....	.....	nne.	161	
4:20	1,023.9	6.6	94	n.	.....	9	1,023.9	6.6	.....	94	9.16	n.	9	2/10 Cl.Cu., 1/10 A.Cu.

June 19, 1915.

P. M.														
1:55	1,014.9	9.0	96	nw.	7.2*	9	1,014.9	9.0	.....	96	11.02	nw.	9	10/10 St., light fog.
2:05	1,014.9	9.0	96	nw.	.....	151	997.7	7.5	1.03	98	10.16	nw.	148	
						250	985.8	7.6	.....	98	10.23	nw.	245	Flight made over Great Banks.
2:24	1,015.0	8.8	100	nw.	.....	397	968.5	7.7	−0.10	98	10.30	nw.	389	
						250	985.8	7.5	.....	98	10.16	nw.	245	Lat. 43° 35′ N.; long. 50° 25′ W.
2:34	1,015.2	8.7	100	nw.	.....	164	996.3	7.4	0.71	98	10.09	nw.	161	
2:42	1,015.2	8.5	100	nw.	.....	9	1,015.2	8.5	.....	100	11.10	nw.	9	Dense fog.

June 20, 1915.

P. M.														
1:51	1,021.4	6.1	96	n.	5.8*	9	1,021.4	6.1	.....	96	9.04	n.	9	10/10 St.
1:56	1,021.4	6.0	95	n.	.....	70	1,013.9	6.5	−0.66	98	9.49	n.	60	Flight made over cold water south of Great Banks, probably Labrador Current.
						250	991.7	6.9	.....	98	9.75	n.	245	
2:09	1,021.4	5.9	94	n.	.....	362	978.5	7.2	−0.24	98	9.96	n.	358	
						500	962.0	7.0	.....	98	9.82	nne.	490	
2:26	1,021.4	5.9	95	n.	.....	626	947.6	6.9	0.14	98	9.75	nne.	614	
						500	962.0	7.1	.....	98	9.89	nne.	490	Lat. 42° 44′ N.; long. 51° 09′ W.
2:35	1,021.4	5.9	96	n.	.....	385	975.7	7.3	−0.37	98	10.03	n.	377	
						250	991.7	6.8	.....	98	9.68	n.	245	
2:42	1,021.4	5.9	97	n.	.....	9	1,021.4	5.9	.....	97	9.01	n.	9	10/10 St.

* Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

TABLE 3.—*Free-air data from kite flights on board the U. S. C. G. Cutter* Seneca—Continued.

June 23, 1915 (No. 1).

Surface.						At different heights above sea.								
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.	Potential.	Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Gravity.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		10^6 *ergs.*	
9:27	1,008.0	6.7	100	ene.	7.2*	9	1,008.0	6.7	.....	100	9.81	ene.	9	Dense fog.
9:28	1,008.0	6.7	99	ene.	.....	119	994.6	9.3	−2.36	93	10.90	e.	117	Flight made south of Great Banks over mixed water.
.....	.....	.....	.....	.....	.....	250	978.9	9.0	.....	93	10.68	e.	245	
.....	.....	.....	.....	.....	.....	500	949.8	8.3	.....	93	10.18	e.	490	
9:39	1,008.1	6.7	96	ene.	.....	600	938.6	8.1	0.25	93	10.04	e.	588	Lat. 42° 46′ N.; long. 51° 42′ W.
9:48	1,008.1	6.6	95	ene.	.....	636	934.5	8.7	−1.67	88	9.90	e.	623	
.....	.....	.....	.....	.....	.....	750	922.1	8.3	.....	86	9.42	e.	735	
10:04	1,008.3	6.6	91	ene.	.....	784	918.1	8.2	0.23	85	9.24	e.	769	
.....	.....	.....	.....	.....	.....	750	922.1	8.2	.....	85	9.24	e.	735	Dense fog changed to light, then dissipated.
10:21	1,008.3	6.5	90	ene.	.....	613	937.2	8.4	0.36	95	10.47	e.	601	
.....	.....	.....	.....	.....	.....	500	949.8	8.8	.....	94	10.65	e.	490	
10:29	1,008.3	6.5	91	ene.	.....	306	972.6	9.5	−1.01	93	11.04	e.	300	
.....	.....	.....	.....	.....	.....	250	978.9	8.9	.....	92	10.49	e.	245	
10:33	1,008.3	6.5	91	ene.	.....	9	1,008.3	6.5	.....	91	8.81	ene.	9	Few A.Cu., w.; 1/10 St.

June 23, 1915 (No. 2).

A. M.														
10:35	1,008.3	6.5	91	ene.	7.2*	9	1,008.3	6.5	.....	91	8.81	ene.	9	Few A.Cu., w.; 1/10 A.St.
.....	.....	.....	.....	.....	.....	250	979.0	9.1	.....	93	10.75	e.	245	Flight made south of Great Banks over mixed waters.
10:37	1,008.3	6.5	91	ene.	.....	255	978.5	9.2	−1.10	93	10.83	e.	250	
.....	.....	.....	.....	.....	.....	500	949.7	8.8	.....	93	10.54	e.	490	
10:54	1,008.3	6.4	92	ene.	.....	527	947.0	8.8	0.15	93	10.54	e.	517	Lat. 42° 45′ N.; long. 51° 19′ W.
11:17	1,008.4	6.5	92	ne.	.....	749	922.1	8.2	0.43	90	9.78	e.	734	
11:30	1,008.4	6.6	94	ne.	.....	614	937.2	9.0	0.16	90	10.33	e.	602	
.....	.....	.....	.....	.....	.....	500	949.7	9.2	.....	90	10.48	e.	490	
.....	.....	.....	.....	.....	.....	250	979.0	9.6	.....	90	10.76	ene.	245	
11:38	1,008.4	6.7	93	ne.	.....	232	981.4	9.6	−1.26	90	10.76	ene.	228	
11:41	1,008.4	6.8	92	ne.	.....	9	1,008.4	6.8	.....	92	9.09	ne.	9	1/10 Ci.St., w.; few A.Cu., w.

June 26, 1915.

P. M.														
12:31	1,017.6	10.5	93	w.	7.2*	9	1,017.6	10.5	.....	93	11.81	w.	9	9/10 St.Cu., w.
.....	.....	.....	.....	.....	.....	250	988.0	9.0	.....	96	11.02	w.	245	Flight made over mixed waters.
12:42	1,017.6	10.7	93	w.	.....	473	962.2	7.6	0.63	97	10.13	w.	464	
.....	.....	.....	.....	.....	.....	500	958.8	7.5	.....	97	10.06	w.	490	Lat. 42° 38′ N.; long. 52° 10′ W.
12:55	1,017.7	10.9	93	w.	.....	581	949.7	7.1	0.46	97	9.79	w.	570	
1:04	1,017.7	10.9	93	w.	.....	691	937.2	8.3	−1.09	92	10.07	wnw.	678	
1:23	1,017.8	11.0	92	w.	.....	753	930.3	8.5	−0.09	80	8.88	wnw.	738	
1:35	1,017.8	11.0	91	w.	.....	682	938.5	8.6	−0.90	76	8.49	wnw.	669	
1:43	1,017.8	11.0	92	w.	.....	537	955.2	7.3	1.12	92	9.41	w.	526	
.....	.....	.....	.....	.....	.....	500	958.8	7.7	.....	92	9.67	w.	490	
1:54	1,017.9	11.1	93	w.	.....	368	975.0	9.2	0.53	92	10.71	w.	361	
.....	.....	.....	.....	.....	.....	250	988.0	9.8	.....	92	11.15	w.	245	
1:57	1,017.9	11.1	93	w.	.....	9	1,017.9	11.1	.....	93	12.29	w.	9	9/10, St.Cu., w.

June 28, 1915.

A. M.														
11:58	996.4	13.9	94	se.	7.2*	9	996.4	13.9	.....	94	14.93	se.	9	8/10 A.St.; 2/10 St.Cu., sse.
P. M.														
12:02	996.4	13.9	94	se.	.....	175	977.0	14.9	−0.60	94	15.92	se.	172	Flight made over mixed waters, but nearer Gulf Stream.
.....	.....	.....	.....	.....	.....	250	968.4	14.6	.....	94	15.62	se.	245	
.....	.....	.....	.....	.....	.....	500	940.3	13.9	.....	94	14.93	se.	490	
12:20	995.9	13.8	94	se.	.....	526	936.9	13.8	0.31	94	14.83	se.	516	Lat. 41° 58′ N.; long. 50° 55′ W.
.....	.....	.....	.....	.....	.....	750	912.3	12.8	.....	94	13.89	sse.	735	
12:34	995.4	13.6	97	se.	.....	810	905.6	12.6	0.42	94	13.71	sse.	794	
.....	.....	.....	.....	.....	.....	1,000	884.9	11.6	.....	94	12.84	sse.	980	
12:47	994.9	13.5	98	ese.	.....	1,074	876.9	11.2	0.53	94	12.50	sse.	1,053	
.....	.....	.....	.....	.....	.....	1,250	858.1	10.5	.....	86	10.92	s.	1,225	
1:05	994.6	13.4	98	ese.	.....	1,317	851.6	10.2	0.46	82	10.21	s.	1,291	
.....	.....	.....	.....	.....	.....	1,250	858.1	10.6	.....	84	10.74	s.	1,225	Rain at end of flight.
1:24	994.3	13.2	98	ese.	.....	1,045	879.4	11.6	.....	88	12.02	sse.	1,024	
1:32	994.1	13.1	100	ese.	.....	9	994.1	13.1	.....	100	15.08	ese.	9	8/10 A.St.; 2/10 St.Cu., sse.

*Estimated mean surface wind velocity during the kite flight, taken from the ship's log.

III.

DREXEL, NEBR., AEROLOGICAL STATION.

By The Aerological Division, William R. Blair in charge.

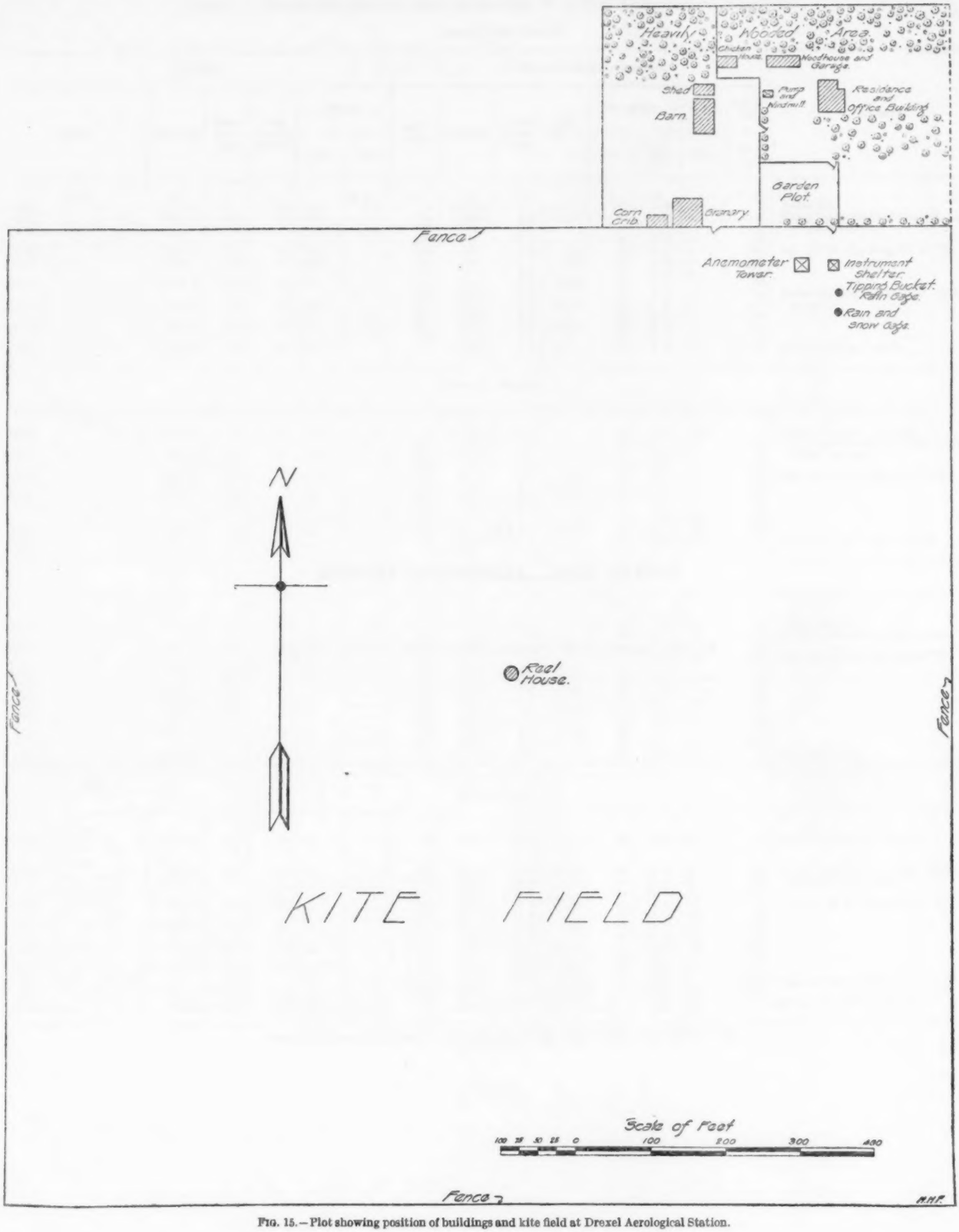

FIG. 15.—Plot showing position of buildings and kite field at Drexel Aerological Station.

III. THE DREXEL AEROLOGICAL STATION.

By the Aerological Division, Wm. R. Blair in charge.

A plot showing the relative location of the Drexel farm buildings and the ground used as a kite field is shown in figure 1. The lease for the property went into effect November 1, 1914, and the work of installation of the kite flying and other equipment was immediately begun. The granary was modified to accommodate the carpenter shop, a small testing room for calibrating and testing meteorographs, a small machine shop for repairs to apparatus and machinery, a power plant room containing the gasoline engine, generator, and switchboard for the distribution of electric current, and storage room for kites.

The carpenter shop is completely equipped for the building and repair of kites. The power plant consists of a 250-volt, 5-kilowatt generator, directly connected with a 4-cylinder gasoline engine. The power generated is used to operate the kite reel, also the saw table of the carpenter shop, the lathes and drill press of the machine shop, and for lighting the shops and the reel house when kite flights are being made at night.

The wind tower, instrument shelter, rain and snow gages were completely installed and observations begun June 1, 1915. The concrete foundations for the track of the reel house could not be laid until the spring of 1915. The superstructure of the reel house, the installation of the power plant and all wiring were completed and the first free-air record obtained on October 22, 1915. Daily free-air observations were begun December 1, 1915, 28 observations having been obtained during October and November, 1915.

The track and rollers for the reel house, all equipment for the carpenter and machine shops, kites and power reel, calibrating apparatus, wind tower, and other equipment for the observation of surface meteorological conditions, horse and wagon, and furniture for offices and quarters, were shipped to the Drexel station from Mount Weather, Va., in the autumn of 1914 and later.

The Drexel station is 396 meters above sea level, 41° 20′ north latitude and 96° 16′ west longitude. The kite field is comparatively level, extreme variations in its level being less than 3 meters. The station is about 32 kilometers west of Omaha; 8 kilometers from Elkhorn, Nebr., the nearest station on the Union Pacific Railroad; and an equal distance from Washington, Nebr., the nearest station on the Chicago & North Western Railroad. Mail reaches the station daily by rural free delivery from Washington, Nebr. Freight, express, and telegrams are best sent via Elkhorn, Nebr.

Figures 16 to 20, inclusive, show the farm buildings and their environment. Figure 21 shows the beginning of a kite flight. Figure 22 is a nearer view of the reel house showing the reel, the apparatus for turning the house on its track, and the instrument shelter in which the kite meteorograph is exposed, along with standard instruments before and after each flight. The reel house fronts away from the wind during a flight, consequently the instrument shelter is so located as to be well in the surface wind. An open roof above the shelter protects it from heat that might be reflected to it by the side of the reel house near which it is exposed. A small reading telescope mounted in the reel house enables the observer to read conveniently the instruments exposed in the shelter. Figure 23 is a rear view of the kite reel. It shows the variable speed motor by which the reel is driven and, in part, the method of insulating the reel from the reel house and from the power system. This insulation enables the observer to read the difference in electric potential between the kite and the earth at any time. The motor switch, starting and reversing box, clutch lever, speed variation, brakes, dynamometer, and line meter are all brought to the right side of the reel and may be conveniently operated or read by the operator without change in position. The drum of this reel has a capacity of about 14 kilometers of piano-wire line.

The country surrounding the Drexel Aerological Station is level or somewhat rolling, nowhere deeply cut by creeks or rivers. Practically all land in this vicinity is under cultivation. Kites that break away are quickly found and returned to the station. A preliminary study of the data being obtained indicates that valuable results for dynamic meteorology are likely to accrue from free-air observation at this and prospective stations located in the open plains of the Middle West.

[To face p. 32.

FIG. 16.—The county road on the east side of Drexel farm.

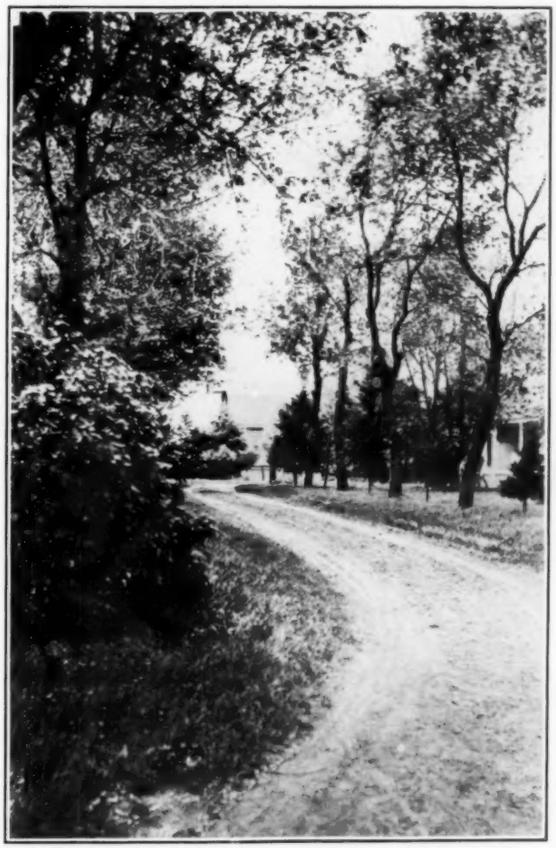

FIG. 17.—The driveway from the county road in the Drexel farm.

[To face p. 32.]

FIG. 18.—General view from the reel house of the Drexel farm buildings.

FIG. 19.—The Drexel farmhouse and grounds.

[To face p. 32.]

FIG. 20.—The Drexel farmhouse, now used as residence and office building.

FIG. 21.—Kite flying at Drexel Aerological Station.

[To face p. 32.]

FIG. 22.—The reel house, Drexel Aerological Station.

[To face p. 32.]

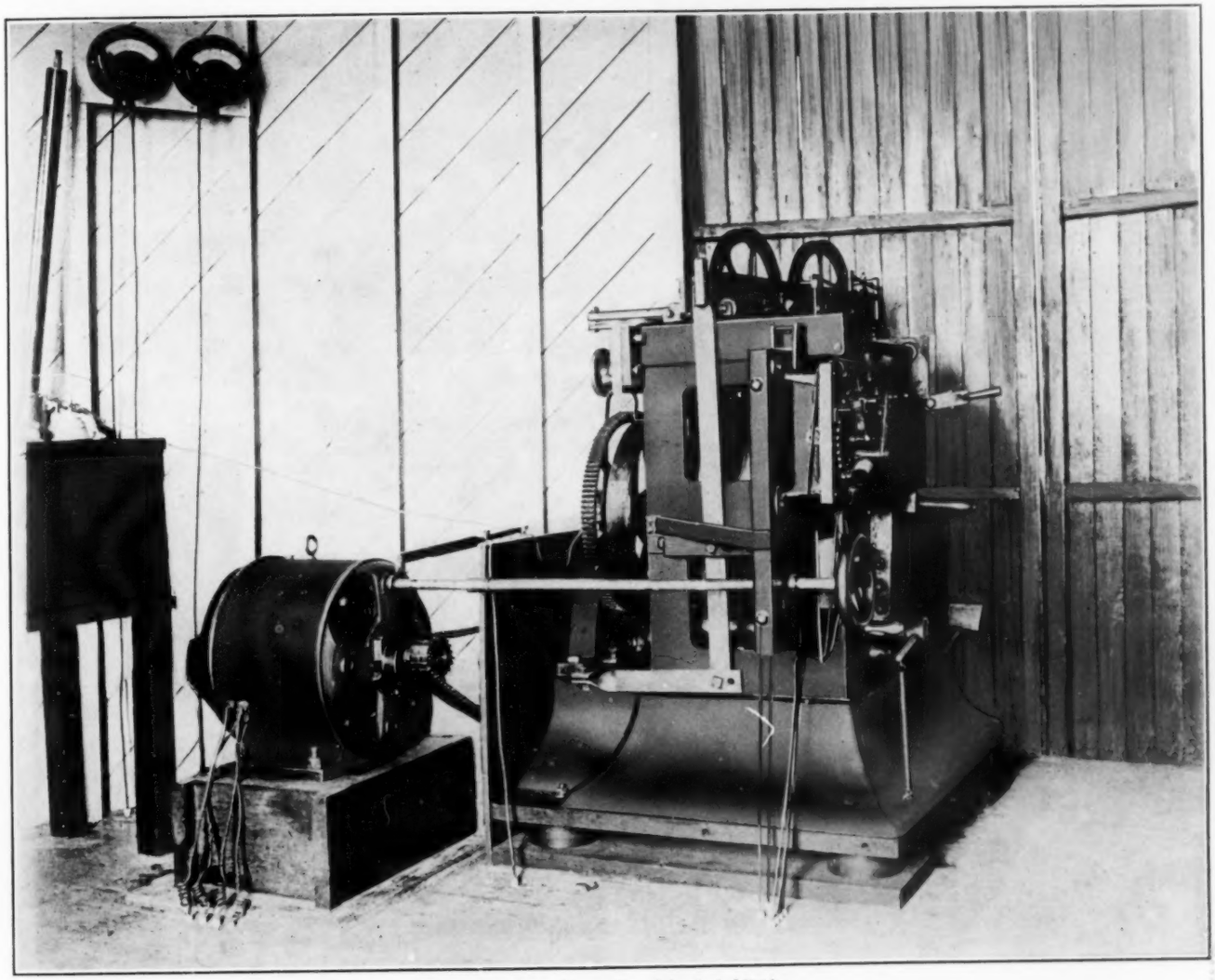

FIG. 23.—Interior, reel house, Drexel Aerological Station.

IV.

FREE-AIR DATA AT DREXEL AEROLOGICAL STATION, OCTOBER, NOVEMBER, AND DECEMBER, 1915.

By The Aerological Division, William R. Blair in charge.

IV. FREE-AIR DATA AT DREXEL AEROLOGICAL STATION, OCTOBER, NOVEMBER, AND DECEMBER, 1915.

By the AEROLOGICAL DIVISION, WILLIAM R. BLAIR in charge.

The first free-air record obtained at Drexel, Nebr., was secured on October 22, 1915. After this date kite flights were made as frequently as possible until November 30, 1915. Daily flights were begun on December 1, 1915. Since that date also observations have been made in series of 8 to 10 successive flights whenever possible. Five flights were made in October, 23 in November, and 41 in December. These observations include one series of nine successive flights on December 21 and 22. The mean of the altitudes reached in October is 2,717 meters above sea level, in November 2,884 meters, and in December 2,848 meters. Flights to heights of over 5 kilometers above sea level were made in November and December.

The first complete series of observations of diurnal variation made at Drexel consisted of nine successive flights. The series began at 9:02 a. m., December 21, and ended at 5:10 p. m., December 22. December 21 was clear until late afternoon when cirrus clouds appeared, increasing to 5/10. December 22 was cloudy early in the day, there being 5/10 cirrus, a few cirro-cumulus, and 1/10 alto-cumulus. At 7 to 8 a. m. the sky was clear; at 10 a. m. to 12 noon, partly cloudy; at noon 5/10 cirrus; at 2 p. m. and later cloudy, there being 9/10 alto-stratus until 5 p. m.; and 10/10 strato-cumulus after 6 p. m. The wind at 8 a. m., December 21, was northwest; at 1 p. m., west; at 4 p. m., southwest. Wind continued southwest until 3 p. m. of December 22, when it went to west. From 4 p. m. to the end of the series the wind was northwest. There was snow on the ground throughout the series. Light rain began at 4 p. m., December 22. Figure 24 shows an almost continuous inversion of temperature at seven to eight hundred meters above sea level, or three to four hundred meters above station level. Maxima in the surface of maximum temperature at this level are found at noon on both days. Pressure at the earth's surface was in general falling during December 21 and until 1 p. m. of December 22, when a minimum of pressure passed the station.

TABLE 4.—*Comparison of mean temperatures for November and December, at Drexel, Nebr., and Mount Weather, Va.*

Height.	NOVEMBER.			DECEMBER.		
	Drexel, 1915.	Mount Weather, 5-year mean.	Departures.	Drexel, 1915.	Mount Weather, 5-year mean.	Departures.
Meters.	°C.	°C.	°C.	°C.	°C.	°C.
396	[1] 6.7			[2] — 2.0		
500	6.5	[2] 5.1	+1.4	— 2.4	[2] — 0.3	—2.1
750	5.9	3.9	+2.0	— 1.8	— 1.2	—0.6
1,000	5.7	2.8	+2.9	— 1.5	— 1.9	+0.4
1,250	5.5	1.7	+3.8	— 1.5	— 2.3	+0.7
1,500	5.2	0.7	+4.5	— 2.2	— 2.6	+0.4
1,750	4.7	— 0.2	+4.9	— 2.9	— 3.0	+0.1
2,000	3.7	— 0.9	+4.6	— 3.5	— 3.7	+0.2
2,250	2.5	— 1.8	+4.3	— 4.6	— 4.6	0.0
2,500	1.2	— 2.9	+4.1	— 5.7	— 5.6	—0.1
2,750	— 0.3	— 4.2	+3.9	— 6.9	— 6.8	—0.1
2,000	— 1.9	— 5.5	+3.6	— 8.1	— 8.1	0.0
3,250	— 3.4	— 6.8	+3.4	— 9.0	— 9.5	+0.5
3,500	— 5.1	— 8.3	+3.2	—10.0	—10.9	+0.9
3,750	— 6.9	— 9.9	[3] +3.0	—11.0	—12.3	+1.3
4,000	— 8.3	—11.4	+3.1	—12.5	—13.6	+1.1
4,250	— 9.1	—12.9	+3.8	—13.7	—15.1	+1.4
4,500	—10.7	—14.5	+3.8	—15.1	—16.7	+1.6
4,750	—12.4	—16.1	+3.7	—16.3	—18.2	+1.9
5,000	—13.8	—17.5	+3.7	—17.8	—19.4	+1.6

[1] Actual 24-hour mean temperature, 5.3°.
[2] Actual 24-hour mean temperature, —2.6°.
[3] At surface, 526 meters above sealevel.

In the few observations made up to December 31, 1915, at Drexel, there appear differences in all elements observed between the air over Drexel, Nebr., and that over Mount Weather, Va. Table 4 shows the departures from the Mount Weather 5-year means of the temperatures observed at Drexel in November and December. These departures are positive at all levels in November, smallest at and near the earth s surface with a maximum value at the 1,750-meter level and a second minimum value at the 3,750-meter level. December departures are mostly positive. The largest negative departures occur at and near the earth's surface. The other negative departures are of 0.1° each and are found at the 2,500- and 2,750-meter levels. Between the two groups of negative departures a maximum positive departure of 0.7° is found at the 1,250-meter level. In reading the actual temperatures at the lower levels shown in Table 4 it should be kept in mind that the observations on which they are based were for the most part made during insolation. These temperatures are therefore a little high, as the footnotes of the table indicate. The complete data for the three months follow in Table 5.

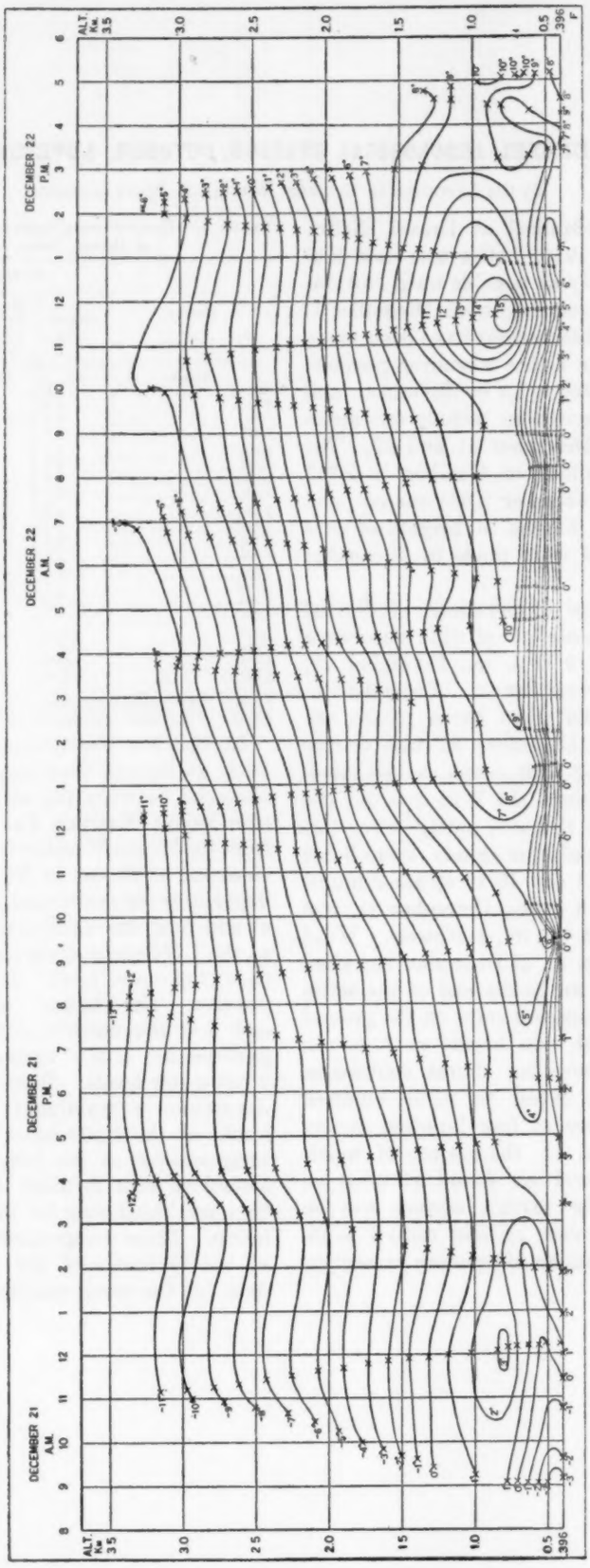

FIG. 24.—Free-air temperatures, °C., above Drexel, Nebr., Aerological Station, December 21-22, 1915.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station.*

October 22, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^6 *ergs.*	*volts.*	
8:58	977.0	15.2	58	s.	4.9	396	977.0	15.2	.....	58	10.02	s.	4.9	388	.....	Few Ci.St., nw.
9:00	977.0	15.3	54	s.	4.9	453	970.5	14.0	2.11	59	9.43	ssw.	6.7	444	0	Clouds moving rapidly.
						500	965.6	14.7	.....	58	9.70	ssw.	8.6	490	0	
9:02	977.0	15.4	51	s.	4.9	631	950.3	16.7	−1.52	57	10.84	ssw.	12.4	619	0	
						750	937.2	17.1	.....	57	11.12	ssw.	10.9	735	0	
9:12	976.9	16.0	56	s.	4.9	825	929.0	17.3	−0.31	56	11.06	ssw.	10.0	809	0	
						1,000	909.8	15.9	.....	57	10.30	ssw.	11.0	980	0	
						1,250	883.6	13.9	.....	58	9.21	sw.	12.5	1,225	0	
9:27	976.9	17.0	57	s.	5.4	1,341	874.3	13.2	0.79	59	8.95	sw.	13.0	1,315	0	
						1,500	858.1	14.1	.....	52	8.37	sw.	13.9	1,470	0	
9:41	976.8	17.2	51	s.	6.3	1,557	852.4	14.4	−0.56	49	8.04	sw.	14.3	1,526	70	
						1,750	838.1	13.5	.....	48	7.43	sw.	12.9	1,715	320	
						2,000	808.6	12.4	.....	47	6.77	wsw.	11.0	1,960	620	
10:36	976.5	19.2	48	ssw.	5.4	2,148	794.3	11.7	0.46	46	6.32	wsw.	9.9	2,105	950	1/10 Ci., nw.; 2/10 Ci., nw.
						2,250	789.5	10.8	.....	45	5.83	wsw.	9.5	2,205	920	
11:29	976.3	20.6	47	ssw.	7.6	2,459	765.2	8.9	0.90	44	5.02	wsw.	8.2	2,410	1,160	
						2,500	761.1	8.6	.....	44	4.91	wsw.	8.3	2,450	1,200	
						2,750	738.8	7.3	.....	44	4.50	wsw.	9.0	2,694	.....	
11:47	976.1	21.4	45	s.	7.2	2,909	724.9	6.4	0.58	44	4.23	wsw.	9.4	2,850	.....	Few Ci., nw.
						2,750	738.8	7.3	.....	44	4.50	wsw.	9.3	2,694	.....	
						2,500	761.1	8.8	.....	44	4.99	sw.	9.2	2,450	960	
P. M.																
12:11	975.9	22.2	44	s.	8.9	2,375	773.0	9.6	0.56	44	5.26	sw.	9.2	2,327	890	
						2,250	789.5	10.3	.....	45	5.64	sw.	9.5	2,205	820	
						2,000	808.6	11.7	.....	46	6.32	sw.	10.2	1,960	760	
						1,750	838.1	13.1	.....	48	7.24	sw.	10.8	1,715	660	
12:35	975.6	22.7	43	s.	8.5	1,552	852.4	14.2	0.37	49	7.93	sw.	11.3	1,521	600	
						1,500	857.8	14.4	.....	51	8.36	sw.	12.6	1,470	560	
12:44	975.4	23.1	43	ssw.	8.5	1,388	868.9	14.8	0.31	55	9.26	sw.	15.5	1,361	420	
						1,250	883.0	15.2	.....	56	9.67	sw.	14.7	1,225	320	
						1,000	909.0	16.0	.....	58	10.54	ssw.	13.3	980	60	
12:49	975.4	23.6	43	s.	7.2	938	916.3	16.2	1.33	59	10.87	ssw.	12.9	920	0	
						750	936.1	18.7	.....	54	11.65	ssw.	11.5	735	0	
						500	963.7	22.0	.....	46	12.16	s.	9.7	490	0	
1:04	975.3	23.4	43	s.	8.9	396	975.3	23.4	.....	43	12.38	s.	8.9	388	.....	Few Ci., nw.

October 23, 1915.

A. M.																
9:28	972.1	15.9	58	sw.	6.7	396	972.1	15.9	.....	58	10.48	sw.	6.7	388	.....	Cloudless.
						500	959.0	13.9	.....	59	9.37	sw.	8.3	490	0	
9:30	972.1	16.0	58	ssw.	7.2	505	959.6	13.8	1.93	59	9.31	sw.	8.4	495	0	
9:31	972.1	16.1	58	ssw.	7.2	717	936.1	17.5	−1.75	59	11.80	sw.	13.5	703	0	
						750	931.9	18.2	.....	58	12.12	sw.	13.0	735	0	
9:36	972.1	16.5	57	sw.	7.6	885	918.2	20.8	−1.96	53	13.02	sw.	11.3	868	0	
9:40	972.1	16.7	57	sw.	7.2	968	909.3	21.6	−0.96	48	12.38	sw.	11.5	949	60	
9:45	972.1	16.9	56	ssw.	7.6	1,001	905.8	21.6	0.00	45	11.61	sw.	11.5	981	70	
						1,250	880.2	19.9	.....	40	9.30	sw.	13.7	1,225	200	
9:55	972.0	17.2	54	sw.	7.6	1,499	855.3	18.2	0.68	35	7.32	sw.	16.0	1,469	330	
						1,750	831.8	16.3	.....	33	6.11	wsw.	13.1	1,715	420	
10:17	971.9	17.9	56	ssw.	6.3	1,983	808.0	14.6	0.74	32	5.32	wsw.	10.4	1,944	500	
						2,000	806.0	14.5	.....	32	5.28	wsw.	10.1	1,960	510	
11:21	971.3	19.8	54	ssw.	8.0	2,249	783.0	12.7	0.80	27	3.97	wsw.	5.5	2,204	.....	Few Ci. forming.
11:30	971.2	20.0	53	ssw.	7.2	2,036	802.9	14.6	0.84	27	4.49	wsw.	8.1	1,995	660	
						2,000	805.9	14.9	.....	27	4.57	wsw.	8.2	1,960	410	
						1,750	830.4	17.0	.....	27	5.23	wsw.	9.2	1,715	370	
						1,500	854.5	19.1	.....	27	5.97	sw.	10.1	1,470	320	
11:38	971.2	20.2	53	ssw.	8.0	1,477	857.0	19.3	0.56	27	6.05	sw.	10.2	1,448	340	
						1,250	879.1	20.6	.....	27	6.55	sw.	11.3	1,225	280	
11:47	971.0	20.5	52	ssw.	7.6	996	905.8	22.0	0.00	28	7.40	sw.	12.5	976	220	
11:49	971.0	20.7	52	sw.	7.6	963	909.3	22.0	−1.15	29	7.67	sw.	12.5	944	210	
11:54	970.9	20.9	51	sw.	6.7	911	914.6	21.4	−1.95	30	7.65	sw.	15.4	893	200	
						750	931.9	18.3	.....	35	7.36	sw.	12.8	735	145	
11:56	970.9	20.9	51	sw.	6.7	711	936.1	17.5	1.11	36	7.20	sw.	12.2	697	130	
						500	959.0	19.8	.....	45	10.40	sw.	8.9	490	40	
NOON	970.9	21.0	50	sw.	7.2	396	970.9	21.0	.....	50	12.44	sw.	7.2	388	.....	Few Ci., w.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

October 29, 1915.

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*° C.*	%		*m. p. s.*	*m.*	*mb.*	*° C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
8:42	973.4	11.4	65	w.	4.5	396	973.4	11.4	.....	65	8.76	w.	4.5	388	.....	Cloudless.
						500	961.9	14.1	.....	65	10.46	nw.	6.4	490	0	
8:43	973.4	11.4	65	w.	4.9	556	955.0	15.5	−2.56	65	11.45	nnw.	7.2	545	0	
8:49	973.4	11.7	64	w.	4.9	704	938.7	18.5	−2.03	53	11.29	nnw.	9.9	690	0	
						750	934.0	19.0	.....	49	10.77	nnw.	10.0	735	0	
8:55	973.6	11.9	64	w.	4.9	836	924.5	19.9	−1.06	41	9.53	nnw.	10.3	820	50	
						1,000	906.9	18.9	.....	39	8.52	nnw.	11.2	980	110	
						1,250	880.9	17.3	.....	36	7.11	nw.	12.6	1,225	230	
9:11	973.7	12.2	63	w.	4.5	1,375	868.4	16.5	0.63	34	6.38	nw.	13.3	1,348	330	
						1,500	855.9	15.3	.....	34	5.91	nw.	12.8	1,470	400	
						1,750	831.2	13.0	.....	34	5.09	nw.	11.7	1,715	500	
9:32	973.8	13.6	61	wnw.	4.0	1,841	822.3	12.1	0.94	34	4.80	nw.	11.3	1,804	615	Cloudless.
						2,000	807.8	10.9	.....	35	4.56	nw.	13.4	1,960	820	
						2,250	782.7	9.0	.....	37	4.25	nw.	16.6	2,205	1,080	
						2,500	759.4	7.1	.....	38	3.83	nnw.	19.8	2,450	1,340	
						2,750	737.1	5.2	.....	40	3.54	nnw.	23.0	2,694	1,590	
10:03	973.9	15.6	55	nw.	2.7	2,756	736.5	5.1	0.77	40	3.52	nnw.	23.1	2,700	1,600	Few A.St. near horizon.
10:08	973.9	15.9	54	nw.	2.7	2,864	726.8	4.6	0.46	41	3.48	nnw.	23.4	2,806	1,760	
						3,000	714.9	4.6	.....	40	3.39	nnw.	23.4	2,939	1,920	
10:16	973.9	16.3	54	nw.	2.2	3,065	709.2	4.6	0.00	40	3.39	nnw.	23.4	3,003	.....	
10:23	973.9	16.8	53	nw.	1.8	3,103	706.0	6.5	−3.00	33	3.19	nnw.	22.0	3,040	.....	
						3,000	714.9	5.5	.....	32	2.89	nnw.	24.2	2,939	1,900	
10:32	973.9	17.5	55	nw.	1.8	2,955	718.8	5.0	−0.18	32	2.79	n.	25.1	2,895	1,800	
10:37	973.9	17.7	55	nw.	1.8	2,791	733.3	4.7	0.53	35	2.99	n.	25.1	2,735	1,440	
						2,750	737.1	4.9	.....	35	3.03	n.	24.4	2,694	1,350	
						2,500	759.9	6.3	.....	39	3.72	n.	20.2	2,450	930	
						2,250	784.7	7.6	.....	42	4.38	nnw.	16.0	2,205	750	
10:57	973.9	19.4	45	nnw.	1.8	2,211	787.2	7.8	1.21	42	4.44	nnw.	15.3	2,167	720	Cloudless.
						2,000	806.8	10.4	.....	41	5.17	nnw.	12.9	1,960	560	
11:08	973.9	19.7	39	nnw.	1.8	1,864	820.6	12.0	0.64	40	5.61	nnw.	11.3	1,827	460	
						1,750	832.1	13.0	.....	39	5.84	nnw.	11.1	1,715	350	
						1,500	856.7	15.3	.....	36	6.26	nw.	10.8	1,470	130	
11:31	973.7	21.0	38	nnw.	2.2	1,348	871.9	16.7	0.77	34	6.46	nw.	10.5	1,321	0	
						1,250	881.9	17.4	.....	34	6.76	nnw.	10.2	1,225	0	
11:36	973.7	21.2	38	nnw.	2.2	1,011	906.7	19.3	0.43	34	7.61	nnw.	9.5	991	0	
						1,000	908.1	19.3	.....	34	7.61	nnw.	9.5	980	0	
11:44	973.7	21.5	33	nnw.	2.2	894	919.2	19.8	−1.06	32	7.39	nnw.	9.3	877	0	
11:46	973.7	21.6	32	nnw	2.2	762	933.4	18.4	1.09	32	6.77	nnw.	7.3	747	0	
						750	934.9	18.5	.....	32	6.82	nnw.	7.2	735	0	
						500	961.9	21.2	.....	34	8.56	n.	3.7	490	0	
11:52	973.6	22.4	35	n.	2.2	396	973.6	22.4	.....	35	9.48	n.	2.2	388	.....	Cloudless.

October 30, 1915.

A. M.																
9:35	969.6	17.1	54	s.	6.7	396	969.6	17.1	.....	54	10.53	s.	6.7	388	.....	5/10 Cl., nw.
9:36	969.6	17.2	53	s.	6.7	464	961.8	15.6	2.21	54	9.57	s.	12.1	455	0	
						500	957.6	16.4	.....	54	10.07	s.	15.0	490	0	
9:37	969.6	17.2	53	s.	6.7	662	940.0	19.6	−2.02	52	11.86	ssw.	27.9	649	0	
						750	929.8	19.0	.....	39	8.57	ssw.	26.7	735	0	
9:45	969.4	18.0	51	s.	8.0	760	929.2	19.0	0.61	38	8.35	ssw.	26.6	745	0	
						1,000	902.9	17.5	.....	34	6.80	ssw.	26.4	980	0	
10:00	969.3	18.3	50	s.	6.7	1,163	886.3	16.5	0.62	32	6.01	ssw.	26.4	1,140	0	5/10 Cl., nw.
						1,250	876.9	16.3	.....	29	5.37	ssw.	26.0	1,225	260	
						1,500	851.9	15.7	.....	24	4.28	ssw.	25.0	1,470	990	
10:40	968.6	20.4	46	s.	5.8	1,676	834.3	15.3	0.23	20	3.48	ssw.	24.3	1,643	1,500	
						1,750	827.0	14.8	.....	20	3.37	ssw.	23.9	1,715	1,540	
						2,000	802.8	13.0	.....	19	2.85	ssw.	22.7	1,960	1,690	
10:52	968.6	20.9	45	s.	11.6	2,152	788.8	12.0	0.69	18	2.53	ssw.	21.9	2,109	1,770	
						2,250	779.2	11.4	.....	18	2.43	ssw.	21.8	2,205	1,830	
						2,500	756.1	9.9	.....	18	2.20	ssw.	21.7	2,450	1,970	
11:23	967.9	22.3	41	s.	9.8	2,668	740.9	8.8	0.67	18	2.04	ssw.	21.6	2,614	2,250	5/10 Cl., nw.
						2,500	755.8	10.0	.....	16	1.96	ssw.	23.1	2,450	1,850	
						2,250	778.1	11.8	.....	14	1.94	sw.	25.3	2,205	1,330	
11:57	967.0	23.2	38	s.	11.2	2,193	783.9	12.2	0.71	14	1.99	sw.	25.8	2,149	1,200	
						2,000	801.1	13.5	.....	12	1.86	sw.	26.5	1,960	1,150	
						1,750	825.1	15.3	.....	9	1.56	sw.	27.4	1,715	820	
P. M.																
12:17	966.3	23.6	37	s.	13.9	1,641	836.1	16.1	−0.21	8	1.46	sw.	27.8	1,608	720	
						1,500	849.8	15.8	.....	12	2.15	sw.	26.4	1,470	600	
						1,250	874.9	15.3	.....	19	3.30	ssw.	23.9	1,225	90	
12:27	966.1	23.9	36	s.	10.3	1,210	879.3	15.2	1.10	20	3.45	ssw.	23.5	1,186	0	
						1,000	900.8	17.5	.....	27	5.40	ssw.	22.0	980	0	
12:43	965.7	24.6	33	s.	17.9	890	921.9	19.7	1.11	34	7.80	ssw.	20.6	784	0	
						750	927.2	20.3	.....	34	8.10	ssw.	19.9	735	0	
						500	954.0	23.1	.....	33	9.33	s.	16.3	490	0	
12:55	965.3	24.2	33	s.	14.8	396	965.3	24.2	.....	33	9.97	s.	14.8	388	.....	7/10 Cl.St., sw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

October 31, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^3 ergs.*	*volts.*	
11:35	960.8	17.3	28	n.	6.7	396	960.8	17.3	.....	28	5.53	n.	6.7	388	.....	Few Cl.St., nw.
						500	948.5	15.9	.....	28	5.06	n.	8.5	490	0	
						750	921.0	12.4	.....	30	4.32	n.	12.7	735	0	
11:42	960.8	17.5	30	n.	7.6	795	916.6	11.8	1.38	30	4.15	n.	13.4	779	30	
						1,000	894.2	11.9	.....	31	4.32	n.	20.4	980	280	
11:51	960.8	17.6	28	n.	5.8	1,059	888.3	11.9	−0.04	31	4.32	n.	22.4	1,038	340	
						1,250	867.9	10.9	.....	32	4.17	n.	21.6	1,225	570	
						1,500	842.0	9.6	.....	34	4.06	nnw.	20.6	1,470	950	
						1,750	817.7	8.3	.....	36	3.94	nnw.	19.3	1,715	1,290	
P. M.																
12:16	960.8	18.3	25	n.	7.2	1,871	805.7	7.7	0.52	37	3.89	nnw.	19.0	1,834	1,370	
						2,000	793.4	7.8	.....	37	3.91	nw.	16.7	1,960	1,460	
12:19	960.8	18.4	24	n.	6.7	2,028	790.6	7.8	−0.06	37	3.91	nw.	16.2	1,987	1,480	
12:26	960.8	18.4	23	n.	7.6	2,081	785.7	9.9	−3.96	34	4.15	nw.	17.3	2,039	1,500	
						2,250	770.0	8.8	.....	32	3.63	nw.	16.7	2,205	1,650	
12:35	960.8	18.1	25	nnw.	4.9	2,366	759.2	8.0	0.67	30	3.22	nw.	16.3	2,318	1,740	
						2,500	747.0	7.0	.....	30	3.01	nw.	15.9	2,450	1,840	
12:53	960.8	18.4	24	nnw.	5.8	2,655	732.9	5.8	0.66	30	2.77	nw.	15.4	2,601	1,800	Cloudless.
						2,500	747.0	6.6	.....	30	2.93	nw.	14.9	2,450	1,670	
1:00	960.8	18.4	21	nnw.	5.4	2,327	762.4	7.6	−0.50	30	3.13	nw.	14.4	2,280	1,530	
						2,250	770.0	7.2	.....	30	3.05	nw.	15.7	2,205	1,480	
1:08	960.9	18.3	21	nnw.	8.0	2,187	775.6	6.9	0.16	30	2.98	nw.	16.7	2,143	1,390	
						2,000	793.4	7.2	.....	32	3.25	nw.	15.5	1,960	1,200	
						1,750	818.0	7.6	.....	35	3.65	nnw.	13.8	1,715	930	
1:20	960.9	18.5	21	nnw.	6.7	1,701	822.6	7.7	0.93	36	3.78	nnw.	13.5	1,667	880	
						1,500	843.0	9.6	.....	35	4.18	nnw.	13.5	1,470	550	
1:26	961.0	18.5	18	nnw.	8.0	1,313	862.1	11.3	−0.72	35	4.69	nnw.	13.5	1,287	260	
						1,250	868.7	10.8	.....	31	4.01	nnw.	15.2	1,225	190	
1:33	961.2	18.5	18	nnw.	8.5	1,161	877.7	10.2	0.81	26	3.24	nnw.	17.6	1,138	160	
						1,000	894.9	11.5	.....	24	3.26	nnw.	15.0	980	100	
						750	922.1	13.5	.....	20	3.09	n.	11.0	735	10	
1:44	961.3	18.7	16	n.	8.0	718	925.7	13.8	1.55	20	3.16	n.	10.5	704	0	
						500	950.0	17.1	.....	18	3.51	n.	8.8	490	0	
1:49	961.4	18.8	17	n.	8.0	396	961.4	18.8	.....	17	3.69	n.	8.0	388	.....	Cloudless.

November 1, 1915.

A. M.																
8:39	963.2	9.4	52	sw.	4.5	396	963.2	9.4	.....	52	6.13	sw.	4.5	388	.....	Cloudless.
						500	951.3	14.9	.....	47	7.96	wnw.	.....	490	0	
8:43	963.3	10.0	53	wsw.	4.5	561	944.9	18.2	−5.33	43	8.99	nw.	.....	550	0	
8:50	963.3	10.2	51	sw.	4.0	741	925.0	21.0	−1.56	33	8.21	nw.	.....	727	0	
						750	923.8	20.9	.....	33	8.16	nw.	.....	735	0	
8:58	963.4	10.4	53	wsw.	3.6	965	901.7	19.2	0.80	27	6.01	nw.	.....	946	0	
						1,000	896.6	18.9	.....	27	5.90	nw.	.....	980	60	
						1,250	871.8	16.4	.....	26	4.85	nw.	.....	1,225	470	
9:13	963.7	11.5	47	w.	3.1	1,481	849.3	14.2	0.97	25	4.05	nw.	.....	1,452	850	
						1,500	847.1	14.0	.....	25	4.00	nw.	.....	1,470	880	
						1,750	822.5	10.9	.....	27	3.52	nw.	.....	1,715	1,340	
9:56	965.0	15.2	40	nnw.	5.4	1,977	801.6	8.3	1.19	29	3.18	nw.	.....	1,938	1,320	
						2,000	798.9	8.1	.....	29	3.13	nw.	.....	1,960	1,300	
						2,250	775.9	6.1	.....	31	2.92	nw.	.....	2,205	1,360	
10:20	965.3	17.8	36	nnw.	7.2	2,473	755.2	4.4	0.79	33	2.76	nw.	.....	2,423	1,400	Clock cylinder slipped.

November 3, 1915.

A. M.																
8:36	973.8	9.6	47	s.	7.2	396	973.8	9.6	.....	47	5.62	s.	7.2	388	.....	2/10 Cl.St., nw.; 7/10 Cl.Cu., w.
						500	961.5	10.9	.....	44	5.74	s.	10.8	490	0	
						750	933.7	14.0	.....	38	6.07	s.	19.6	735	0	
8:48	973.7	10.2	46	s.	8.0	810	926.9	14.7	−1.23	37	6.19	s.	21.6	794	90	9/10 Cl.St., nw.
9:46	972.9	13.5	42	s.	10.3	981	908.0	15.7	−0.58	57	10.17	ssw.	27.6	962	540	
						1,000	906.0	15.6	.....	59	10.45	ssw.	27.2	980	590	
9:56	972.6	14.2	40	s.	11.2	1,230	881.6	14.4	0.52	83	13.61	ssw.	21.8	1,206	1,200	
						1,250	879.2	14.2	.....	84	13.60	ssw.	.....	1,225	1,260	
						1,500	853.6	12.5	.....	91	13.19	ssw.	.....	1,470	1,930	
10:12	972.5	14.6	39	s.	11.6	1,566	846.9	12.1	0.68	93	13.13	ssw.	.....	1,535	2,100	
						1,750	823.8	11.5	.....	72	9.77	ssw.	.....	1,715	2,630	
10:19	972.5	14.8	39	s.	10.3	1,789	824.9	11.4	0.31	68	9.17	ssw.	.....	1,753	2,740	
10:30	972.5	15.1	40	s.	9.8	1,992	804.6	9.0	0.94	80	9.18	sw.	.....	1,952	3,300	
						1,750	823.8	10.8	.....	77	9.97	sw.	.....	1,715	2,860	
10:48	972.3	15.8	40	s.	11.2	1,646	838.3	11.6	0.31	76	10.38	sw.	.....	1,613	2,660	
						1,500	853.4	12.0	.....	85	11.93	sw.	.....	1,470	2,400	
10:55	972.3	16.2	38	s.	11.2	1,390	864.3	12.4	0.55	92	13.25	sw.	.....	1,363	2,200	
						1,250	878.7	13.2	.....	92	13.96	sw.	.....	1,225	1,950	
11:02	972.3	16.5	40	ssw.	13.4	1,173	886.7	13.6	−1.34	92	14.33	sw.	.....	1,150	1,800	9/10 Cl.St., nw.
11:20	972.0	16.5	41	ssw.	13.4	1,039	900.9	11.8	0.87	62	8.58	ssw.	.....	1,019	560	
						1,000	905.0	12.1	.....	60	8.47	ssw.	.....	980	420	
						750	932.0	14.3	.....	52	8.48	ssw.	.....	735	0	
						500	960.0	16.5	.....	44	8.26	ssw.	.....	490	0	
11:36	971.7	17.4	40	ssw.	13.4	396	971.7	17.4	.....	40	7.95	ssw.	13.4	388	.....	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 4, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
3:48	970.2	16.0	45	ne.	4.5	396	970.2	16.0	.....	45	8.18	ne.	4.5	388	.....	9/10 Cl.St.,nw.; 1/10 A.St.,nw.
						500	958.2	14.5	.....	48	7.92	ne.	5.6	490	0	
3:57	970.2	16.0	47	ne.	3.6	566	951.0	13.6	1.41	50	7.79	ne.	6.3	555	0	
						750	929.8	12.3	.....	48	6.87	ne.	.....	735	0	
4:16	970.2	15.6	49	ne.	3.6	892	914.9	11.4	0.67	47	6.34	ne.	.....	875	0	
4:40	970.2	14.6	51	ne.	3.1	923	911.4	12.1	−2.26	46	6.50	ene.	.....	905	0	
						1,000	903.7	11.6	.....	46	6.28	ene.	.....	980	0	
4:52	970.2	14.6	52	ne.	3.1	1,153	886.6	10.7	−0.50	46	5.92	ene.	.....	1,130	.....	
4:58	970.2	14.2	53	ne.	3.6	1,023	900.6	11.2	−0.99	46	6.12	ne.	.....	1,003	0	
						1,000	903.2	11.0	.....	46	6.04	ne.	.....	980	0	
5:00	970.2	14.1	53	ne.	3.6	990	904.3	10.9	0.69	46	6.00	ne.	.....	971	0	
						750	929.8	12.5	.....	46	6.67	ne.	.....	735	0	
5:07	970.2	13.8	54	ne.	3.6	728	932.9	12.7	0.88	46	6.76	ne.	.....	714	0	
5:12	970.2	13.6	52	ne.	3.6	501	958.2	14.7	−1.05	47	7.86	ne.	.....	491	0	
5:14	970.2	13.6	52	ne.	3.6	396	970.2	13.6	.....	52	8.10	ne.	3.6	388	.....	9/10 Cl.St., nw.; 1/10 A.St.,nw.

November 5, 1915.

A. M.																
8:51	966.9	9.0	53	ese.	3.6	396	966.9	9.0	.....	53	6.08	ese.	3.6	388	.....	Few Cl., nw.
8:52	966.9	9.0	53	ese.	3.6	496	955.2	6.8	2.20	57	5.63	ese.	8.8	486	0	
8:54	966.9	9.2	54	ese.	3.6	673	935.2	10.7	−2.20	58	7.46	se.	9.3	660	0	
						750	926.5	11.4	.....	64	8.63	s.	6.7	735	0	
9:56	966.5	11.3	51	sse.	4.0	797	920.9	11.8	−0.89	68	9.41	ssw.	5.1	781	0	
						1,000	899.8	16.4	.....	64	11.94	ssw.	8.3	980	260	
10:06	966.5	11.0	53	sse.	4.0	1,021	896.9	16.9	−2.28	63	12.13	ssw.	8.7	1,001	290	
						1,250	873.6	16.8	.....	58	11.10	ssw.	5.8	1,225	480	
10:12	966.5	12.0	51	sse.	5.4	1,404	857.9	16.7	0.06	55	10.46	ssw.	3.9	1,376	.....	
						1,250	873.6	16.8	.....	56	10.71	ssw.	4.1	1,225	0	
10:16	966.5	12.1	49	sse.	4.5	1,010	898.3	17.0	−1.83	58	11.24	ssw.	4.4	990	0	
						1,000	899.8	16.8	.....	58	11.10	ssw.	4.4	980	0	
10:17	966.5	12.2	49	sse.	4.5	786	922.3	12.9	−2.70	59	8.78	ssw.	4.4	771	0	
10:36	966.5	13.2	49	s.	3.1	749	926.6	11.9	−4.00	68	9.47	ssw.	5.4	734	0	
10:39	966.5	13.0	52	s.	3.1	699	932.3	9.9	1.02	68	8.30	s.	5.5	685	0	
						500	954.2	11.9	.....	58	8.08	s.	4.0	490	0	
10:40	966.5	13.0	53	s.	3.1	396	966.5	13.0	.....	53	7.94	s.	3.1	388	.....	Few Cl., nw.

November 6, 1915.

A. M.																
8:36	966.2	10.2	90	sse.	2.7	396	966.2	10.2	.....	90	11.20	sse.	2.7	388	.....	8/10 Cl., w.; Light fog.
						500	954.2	12.9	.....	90	13.39	sse.	5.1	490	0	
8:40	966.2	10.6	95	sse.	2.7	638	939.0	16.3	−2.52	90	16.68	sse.	8.3	625	0	
						750	926.3	16.7	.....	85	16.16	sse.	8.4	735	0	
						1,000	899.9	17.6	.....	79	15.90	sse.	8.8	980	170	
						1,250	874.3	18.5	.....	71	15 12	s.	9.2	1,225	510	
9:02	966.5	12.5	87	sse.	3.1	1,265	872.9	18.5	−0.35	71	15 12	s.	9.2	1,240	515	Fog dissipated.
						1,500	849.7	18.3	.....	64	13.16	s.	10.4	1,470	840	
						1,750	825.9	18.0	.....	56	11.56	sse.	11.6	1,715	1,160	
9:31	966.7	14.0	82	se.	2.7	1,900	811.3	17.9	0.09	51	10.46	sse.	12.4	1,862	1,350	
						2,000	802.1	17.0	.....	50	9.69	sse.	11.6	1,960	1,540	
						2,250	778.8	14.7	.....	46	7.70	sse.	9.6	2,205	1,870	
10:12	966.6	15.6	74	se.	2.7	2,301	774.0	14.2	0.92	45	7.29	sse.	9.2	2,255	1,910	
						2,500	755 9	12.6	.....	46	6.71	sse.	10.4	2,450	2,400	
						2,750	733.6	10.6	.....	47	6.01	sse.	11.9	2,694	2,210	4/10 Cl., w.
11:50	965.6	19.9	57	se.	4.5	2,855	724.3	9.7	0.81	48	5.77	sse.	12.5	2,797	2,100	Clock cylinder slipped.

November 8, 1915.

A. M.																
8:24	973.3	5.0	74	nw.	6.7	396	973.3	5.0	.....	74	6.45	nw.	6.7	388	.....	Few Cl.St., nw.
						500	960.9	4.1	.....	77	6.31	nw.	10.2	490	0	
						750	932.0	1.8	.....	84	5.85	nw.	18.5	735	0	
8:35	973.6	5.3	72	nw.	5.4	818	924.3	1.2	0.90	86	5.73	nw.	20.7	802	0	
						1,000	903.3	0.3	.....	89	5.55	nw.	22.2	980	350	
8:40	973.6	5.4	72	nw.	5.8	1,037	899.4	0.1	0.50	90	5.54	nw.	22.4	1,017	420	
						1,250	876.0	4.6	.....	68	5.77	nw.	21.9	1,225	830	
8:45	973.7	5.4	71	nw.	5.8	1,274	873.3	5.1	−2.11	66	5.80	nw.	21.8	1,249	880	
						1,500	849.9	3.9	.....	52	4.20	nnw.	22.6	1,470	1,020	
8:50	973.9	5.8	69	nw.	5.4	1,558	844.0	3.6	0.53	48	3.80	nnw.	22.8	1,527	1,090	
						1,750	824.7	6.3	.....	36	3.44	nnw.	19.3	1,715	1,410	
9:13	974.1	6.2	68	nw.	5.8	1,759	823.7	6.4	1.39	35	3.36	nnw.	19.2	1,724	1,420	
						2,000	800.0	5.7	.....	26	2.38	nnw.	18.7	1,960	1.750	
						2,250	776.0	4.9	.....	16	1.39	nw.	18.1	2,205	2.120	
9:35	974.6	6.7	66	nnw.	7.6	2,365	765.4	4.5	0.31	12	1.01	nw.	17.8	2,317	2,340	
						2,500	752.7	3.5	.....	.....	.....	nw.	18.5	2,450	2,580	
						2,750	730.0	1.7	.....	.....	.....	nw.	19.8	2,694	3,030	
						3,000	707.7	−0.1	.....	.....	.....	wnw.	21.0	2,939	3,390	
						3,250	686.2	−1.8	.....	.....	.....	wnw.	22.3	3,184	3,700	
10:08	975.2	7.4	62	nnw.	7.6	3,411	672.4	−3.0	0.72	.....	.....	w.	23.1	3,341	3,800	
						3,500	665.0	−3.8	.....	.....	.....	w.	23.8	3,429	4,000	
						3,750	644.1	−6.2	.....	.....	.....	w.	25.7	3,673	4,350	
						4,000	623.7	−8.5	.....	.....	.....	w.	27.6	3,918	4,700	
10:46	975.6	8.4	59	nw.	6.3	4,054	620.0	−9.1	0.95	62	1.74	w.	28.0	3,971	4,790	
10:55	975.7	8.9	58	nw.	6.3	4,067	618.4	−8.4	−3.04	69	2.06	w.	28.3	3,983	4,800	
11:14	975.7	9.0	57	nw.	6.3	4,010	623.0	−8.8	0.87	75	2.17	w.	29.1	3,928	4,570	
						4,000	623.7	−8.7	.....	75	2.18	w.	29.1	3,918	4,540	
						3,750	644.1	−6.5	.....	69	2.44	w.	28.3	3,673	3,830	
						3,500	665.0	−4.4	.....	63	2.66	wnw.	27.6	3,429	3,490	
11:45	976.0	9.3	54	nnw.	5.8	3,415	672.4	−3.6	0.99	61	2.76	wnw.	27.3	3,345	3,380	
						3,250	686.5	−2.0	.....	53	2.74	wnw.	25.2	3,184	3,150	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 8, 1915—Continued.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
12:05	976.	9.9	53	nnw.	6.7	3,031	705.6	0.2	0.62	43	2.67	wnw.	23.6	2,970	2,850	
						3,000	708.5	0.4	.....	41	2.58	wnw.	23.3	2,939	2,800	
						2,750	731.0	2.0	.....	29	2.05	nw.	21.2	2,694	2,330	
12:22	976.1	9.8	53	nnw.	5.4	2,516	752.3	3.4	0.38	17	1.33	nw.	19.1	2,465	1,820	
						2,500	753.9	3.5	.....	17	1.33	nw.	19.2	2,450	1,780	
12:40	976.3	10.3	50	nnw.	6.7	2,306	772.1	4.2	−0.35	13	1.07	nw.	20.9	2,260	1,540	
						2,250	777.7	4.0	.....	13	1.06	nw.	20.0	2,205	1,490	
12:43	976.3	10.5	48	nnw.	6.7	2,049	796.9	3.3	0.50	13	1.01	nw.	16.8	2,008	1,280	
						2,000	801.8	3.5	.....	13	1.02	nw.	17.2	1,960	1,240	
1:00	976.4	9.9	49	nnw.	6.3	1,747	827.0	4.8	−2.00	13	1.12	nw.	19.1	1,712	960	
1:04	976.4	10.0	48	nnw.	7.2	1,517	850.9	0.2	0.00	13	0.81	nw.	16.7	1,487	690	
						1,500	852.8	0.2	.....	13	0.81	nw.	16.3	1,470	670	
1:07	976.4	10.0	48	nnw.	6.3	1,371	866.3	0.2	0.87	12	0.74	nw.	13.1	1,344	520	
						1,250	879.8	1.3	.....	20	1.34	nw.	12.5	1,225	370	
						1,000	907.3	3.4	.....	38	2.96	nw.	11.3	980	80	
1:21	976.4	10.1	48	nw.	6.3	863	922.5	4.6	1.11	47	3.99	nw.	10.7	846	0	
						750	935.7	5.9	.....	47	4.37	nw.	9.3	735	0	
						500	964.4	8.7	.....	48	5.40	nw.	6.2	490	0	
1:31	976.4	9.8	48	nw.	4.9	396	976.4	9.8	.....	48	5.82	nw.	4.9	388	.....	Cloudless.

November 9, 1915.

A. M.																
8:38	981.0	2.0	79	se.	4.9	396	981.0	2.0	.....	79	5.58	se.	4.9	388	.....	10/10 St.Cu., sw.
						500	968.7	1.3	.....	79	5.30	se.	6.9	490	240	
8:42	981.0	2.1	78	ese.	5.8	740	940.1	−0.3	0.69	80	4.77	se.	11.7	726	780	
						750	939.4	0.1	.....	75	4.61	se.	11.7	735	810	
8:45	981.0	2.1	77	ese.	5.4	786	934.6	1.5	−3.91	69	4.70	ese.	11.8	771	1,100	
						1,000	910.2	2.6	.....	51	3.76	ese.	12.3	980	1,430	
9:03	981.0	2.3	76	ese.	5.4	1,243	883.3	4.0	−0.55	31	2.52	ese.	13.0	1,219	1,800	3/10 A.St., sw.; 7/10 St.Cu., sw.
						1,250	882.6	4.0	.....	31	2.52	ese.	13.0	1,225	1,810	
						1,500	856.0	3.9	.....	26	2.10	ese.	12.6	1,470	2,140	
						1,750	830.0	3.8	.....	22	1.76	se.	12.3	1,715	2,470	9/10 Ci.St., sw.; 1/10 A.Cu., sw.
						2,000	803.8	3.7	.....	18	1.43	se.	12.0	1,960	3,010	
						2,250	780.2	3.6	.....	13	1.03	sse.	11.7	2,205	3,660	Ci., moving rapidly.
10:00	980.8	4.2	67	se.	6.3	2,379	768.3	3.6	0.04	11	0.87	sse.	11.5	2,331	4,000	
						2,500	756.7	2.5	.....	17	1.24	sse.	14.0	2,450	4,050	
10:15	980.6	4.7	65	se.	6.3	2,712	737.0	0.6	0.90	27	1.72	s.	18.3	2,657	4,710	
						2,750	734.0	0.3	.....	30	1.87	s.	18.5	2,694	4,790	
						3,000	711.8	−1.6	.....	51	2.73	s.	19.9	2,939	5,310	
						3,250	689.3	−3.4	.....	71	3.27	ssw.	21.3	3,184	5,850	
11:07	980.0	6.3	55	se.	6.7	3,488	668.6	−5.2	0.75	91	3.59	ssw.	22.6	3,417	7,800	
						3,500	667.8	−5.3	.....	91	3.56	ssw.	22.6	3,429	7,850	
						3,750	646.9	−7.0	.....	97	3.28	sw.	22.5	3,673	8,550	
11:50	979.2	6.9	54	ese.	6.7	3,814	640.8	−7.4	0.67	98	3.19	sw.	22.4	3,736	8,750	
						4,000	626.0	−7.4	.....	82	2.67	sw.	25.8	3,918	9,150	
P. M.																
12:17	978.5	7.3	55	ese.	6.3	4,135	614.8	−7.3	−0.03	70	2.30	sw.	28.3	4,050	9,490	
12:19	978.5	7.4	55	ese.	5.4	4,232	607.2	−6.2	−1.13	61	2.21	sw.	28.3	4,145	9,720	
						4,250	604.9	−6.3	.....	60	2.15	sw.	28.3	4,162	10,020	
						4,500	585.6	−7.4	.....	52	1.70	sw.	28.8	4,407	10,390	
						4,750	566.6	−8.5	.....	45	1.33	sw.	29.4	4,651	11,000	
12:39	977.9	7.3	58	ese.	6.7	4,995	550.0	−9.6	0.45	37	1.00	sw.	29.9	4,891	.....	
12:44	977.7	7.7	55	ese.	6.7	5,111	542.7	−9.1	−0.71	9	0.25	sw.	31.1	5,004	.....	
12:56	977.4	8.4	50	ese.	6.3	5,040	548.5	−9.8	0.68	9	0.24	sw.	29.5	4,935	11,500	
						5,000	551.2	−9.5	.....	.....	.....	sw.	29.4	4,896	11,360	
						4,750	568.3	−7.8	.....	.....	.....	sw.	28.7	4,651	10,500	
						4,500	587.1	−6.1	.....	.....	.....	sw.	28.0	4,407	9,620	
						4,250	606.2	−4.4	.....	.....	.....	sw.	27.3	4,162	8,760	
1:39	976.5	8.2	51	ese.	7.2	4,176	611.9	−3.9	0.06	.....	.....	sw.	27.1	4,090	8,500	
						4,000	626.0	−3.8	.....	.....	.....	sw.	24.8	3,918	7,980	
1:54	976.1	8.1	51	ese.	5.8	3,863	636.1	−3.7	−0.42	.....	.....	sw.	23.0	3,784	7,580	
1:57	976.0	8.1	52	ese.	5.4	3,767	643.7	−4.1	0.52	.....	.....	sw.	22.4	3,690	7,290	
						3,750	645.6	−4.0	.....	.....	.....	sw.	22.1	3,673	7,230	
						3,500	666.5	−2.7	.....	.....	.....	sw.	21.6	3,429	6,480	
						3,250	688.1	−1.4	.....	.....	.....	sw.	21.1	3,184	5,620	
2:18	975.6	8.2	51	ese.	6.7	3,154	695.5	−0.9	0.69	.....	.....	sw.	20.9	3,090	5,120	10/10 A.St., sw.
						3,000	709.9	0.2	.....	.....	.....	sw.	20.4	2,939	4,330	
						2,750	731.8	1.9	.....	.....	.....	ssw.	19.7	2,715	4,450	
						2,500	754.0	3.6	.....	.....	.....	ssw.	19.0	2,450	3,940	
2:48	974.9	8.3	50	ese.	6.7	2,416	761.6	4.2	−1.08	61	5.03	ssw.	18.8	2,367	3,780	
2:51	974.9	8.3	50	se.	8.0	2,259	776.4	2.5	0.80	77	5.63	s.	18.2	2,214	3,480	
						2,250	777.0	2.6	.....	77	5.67	s.	18.2	2,205	3,470	
						2,000	801.1	4.6	.....	86	7.29	s.	18.4	1,960	3,000	
3:02	974.6	8.5	50	ese.	5.8	1,897	811.4	5.4	0.47	90	8.07	s.	18.5	1,859	2,800	
						1,750	826.1	6.1	.....	.....	.....	s.	19.2	1,715	2,560	
						1,500	851.8	7.3	.....	.....	.....	sse.	20.3	1,470	2,160	
3:10	974.5	8.1	51	ese.	6.3	1,427	859.0	7.6	0.14	.....	.....	sse.	20.6	1,399	2,030	
3:15	974.3	8.3	51	ese.	5.8	1,279	874.6	7.8	−1.74	.....	.....	sse.	20.4	1,254	1,640	
						1,250	878.1	7.3	.....	.....	.....	sse.	19.5	1,225	1,560	
3:17	974.3	8.5	50	ese.	5.8	1,020	902.6	3.3	0.17	29	2.24	se.	12.2	1,000	910	
						1,000	905.4	3.3	.....	31	2.40	se.	12.0	980	860	
3:25	974.2	8.5	50	ese.	7.6	847	922.1	3.6	1.09	45	3.56	se.	10.2	830	470	
						750	933.2	4.6	.....	46	3.90	se.	9.3	735	370	
						500	961.7	7.3	.....	49	5.01	ese.	7.2	490	120	
3:30	974.1	8.5	50	ese.	6.3	396	974.1	8.5	.....	50	5.55	ese.	6.3	388	.....	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 10, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*	
4:02	950.9	20.2	78	s.	17.9	396	950.9	20.2	.....	78	18.47	s.	17.9	388	.....	10/10 St.Cu., s.
						500	939.8	19.5	.....	81	18.36	s.	19.5	490	0	
						750	913.3	17.9	.....	87	17.84	s.	23.6	735	0	
						1,000	787.0	16.3	.....	94	17.42	s.	27.7	980	0	
4:17	950.7	20.4	75	s.	18.8	1,183	867.3	15.1	0.64	99	16.99	s.	30.7	1,160	0	
						1,000	787.0	16.3	.....	94	17.42	s.	26.4	980	0	
						750	913.3	17.9	.....	84	17.23	s.	20.7	735	0	
						500	939.4	19.4	.....	79	17.80	ssw.	14.9	490	0	
4:33	950.5	20.1	76	ssw.	12.5	396	950.5	20.1	.....	76	17.88	ssw.	12.5	388	.....	10/10 St.Cu., s.

November 11, 1915.

A. M.																
8:48	963.0	2.3	76	nw.	8.9	396	963.0	2.3	.....	76	5.48	nw.	8.9	388	.....	10/10 Cu., wnw.
						500	950.7	1.2	.....	78	5.19	nw.	10.1	490	0	
						750	922.1	− 1.3	.....	83	4.55	nw.	12.9	735	0	
9:28	964.1	2.9	77	nw.	8.0	797	917.2	− 1.8	1.02	84	4.42	nw.	13.5	781	0	
						1,000	893.9	− 0.1	.....	73	4.42	nnw.	16.7	980	0	
9:29	964.1	2.9	77	nw.	8.0	1,017	892.3	0.0	−0.82	72	4.40	nnw.	17.0	997	0	5/10 Cl.Cu., wnw.; 2/10 A. Cu., wnw.
						1,250	866.1	− 0.8	.....	64	3.65	nnw.	17.8	1,225	20	
						1,500	839.8	− 1.7	.....	55	2.92	nw.	18.7	1,470	310	
9:51	964.5	2.4	74	wnw.	6.7	1,746	814.6	− 2.5	0.34	47	2.33	wnw.	19.5	1,711	590	
						2,000	789.0	− 4.2	.....	49	2.11	wnw.	18.6	1,960	920	
						2,250	764.8	− 5.9	.....	52	1.93	wnw.	17.7	2,205	1,260	
10:09	965.0	3.0	74	nw.	8.5	2,260	763.1	− 6.0	0.67	52	1.91	wnw.	17.7	2,221	1,280	
10:26	965.4	3.2	70	nw.	8.9	2,441	746.7	− 6.0	0.00	74	2.72	wnw.	18.6	2,392	1,480	
						2,500	740.8	− 6.4	.....	76	2.71	wnw.	17.9	2,450	1,550	
10:45	965.8	3.8	65	nw.	7.6	2,721	720.6	− 8.0	0.71	84	2.60	wnw.	15.4	2,666	1,800	Few Cl.Cu., wnw.
						2,750	717.9	− 8.2	.....	82	2.49	wnw.	16.1	2,694	1,830	
						3,000	695.3	− 9.6	.....	69	1.86	wnw.	22.0	2,939	2,040	
10:54	966.1	4.0	62	nw.	8.9	3,057	690.1	− 9.9	0.57	66	1.73	wnw.	23.1	2,995	2,090	
						3,250	673.5	−10.7	.....	58	1.42	wnw.	24.1	3,184	2,260	
						3,500	652.1	−11.6	.....	47	1.06	wnw.	25.4	3,429	2,480	
11:21	966.3	4.5	60	nw.	6.7	3,548	647.7	−11.8	0.39	45	0.99	wnw.	25.7	3,475	2,530	Cloudless.
						3,750	631.6	−12.8	.....	43	0.87	wnw.	25.2	3,673	2,700	
						4,000	611.2	−14.1	.....	40	0.72	wnw.	24.5	3,918	2,910	
P. M.																
12:10	966.6	5.6	57	nw.	7.2	4,230	592.8	−15.2	0.49	37	0.60	wnw.	23.9	4,143	2,750	
						4,000	611.2	−14.1	.....	36	0.64	wnw.	23.5	3,918	2,550	
						3,750	631.6	−12.9	.....	36	0.72	wnw.	23.2	3,673	2,350	
						3,500	652.1	−11.7	.....	35	0.78	wnw.	22.8	3,429	2,200	
12:53	966.9	5.8	56	nw.	6.7	3,262	672.6	−10.6	0.42	34	0.84	wnw.	22.4	3,196	1,900	
						3,250	673.5	−10.6	.....	34	0.84	wnw.	22.3	3,184	1,890	
						3,000	695.3	− 9.5	.....	37	1.00	wnw.	21.1	2,939	1,620	
						2,750	718.6	− 8.5	.....	40	1.18	wnw.	19.8	2,694	1,350	
						2,500	742.1	− 7.4	.....	43	1.40	wnw.	18.6	2,450	1,080	
1:17	967.0	6.0	52	wnw.	6.7	2,423	749.9	− 7.1	0.56	44	1.47	wnw.	18.2	2,374	1,000	
						2,250	766.4	− 6.1	.....	43	1.57	wnw.	17.6	2,205	770	
						2,000	791.1	− 4.8	.....	42	1.71	wnw.	16.8	1,960	440	
1:30	967.0	6.0	49	nw.	5.4	1,901	801.3	− 4.2	0.51	42	1.81	wnw.	16.5	1,863	320	
						1,750	816.2	− 3.4	.....	40	1.84	wnw.	15.9	1,715	250	
						1,500	842.2	− 2.2	.....	38	1.93	wnw.	14.9	1,470	260	
1:41	967.0	6.2	51	nw.	6.3	1,349	859.2	− 1.4	−0.12	37	2.01	wnw.	14.3	1,322	260	
						1,250	869.9	− 1.5	.....	37	1.99	wnw.	12.4	1,225	220	
1:48	967.0	6.2	49	nw.	5.8	1,188	876.5	− 1.6	0.85	38	2.03	wnw.	11.3	1,165	190	
						1,000	897.6	0.0	.....	42	2.57	wnw.	10.4	980	100	
1:56	967.2	6.4	51	nw.	6.3	764	924.4	2.0	1.14	46	3.25	wnw.	9.2	749	0	
						750	926.0	2.1	.....	46	3.27	wnw.	9.0	735	0	
						500	955.0	5.0	.....	49	4.27	wnw.	6.5	490	0	
2:01	967.2	6.2	50	wnw.	5.4	396	967.2	6.2	.....	50	4.74	wnw.	5.4	388	.....	Cloudless.

November 12, 1915.

P. M.																
3:48	975.2	11.1	37	wsw.	4.9	396	975.2	11.1	.....	37	4.89	wsw.	4.9	388	.....	Cloudless.
						500	963.0	9.8	.....	32	3.88	wsw.	6.1	490	0	
4:06	974.9	10.9	39	wsw.	4.0	632	947.6	8.0	1.31	25	2.68	wsw.	7.7	620	0	
						750	934.1	6.9	.....	26	2.59	wsw.	7.5	735	0	
4:48	974.2	10.4	40	wsw.	1.8	911	915.3	5.4	0.91	28	2.51	wsw.	7.3	893	.....	
						750	933.8	6.8	.....	32	3.16	wsw.	5.5	735	0	
						500	962.0	9.1	.....	37	4.28	wsw.	2.5	490	0	
4:57	973.9	10.0	39	wsw.	1.3	396	973.9	10.0	.....	39	4.79	wsw.	1.3	388	.....	Cloudless.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 13, 1915.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*	
8:40	970.5	5.4	62	s.	5.8	396	970.5	5.4	.....	62	5.56	s.	5.8	388	.....	10/10 St.Cu., ssw.; light mist.
						500	958.0	5.5	.....	63	5.69	ssw.	9.1	490	0	
8:42	970.5	5.6	60	s.	5.4	581	948.8	5.7	−0.16	63	5.77	ssw.	11.7	570	0	
						750	929.5	8.8	.....	48	5.44	ssw.	22.2	735	0	
8:43	970.5	5.7	60	s.	5.4	756	928.9	8.9	−1.83	47	5.36	ssw.	23.3	741	0	10/10 St. & St.Cu., ssw.
						1,000	901.8	6.7	.....	41	4.02	ssw.	22.5	980	0	
						1,250	874.6	4.4	.....	34	2.85	ssw.	21.7	1,225	8,390	
9:01	970.6	6.0	57	ssw.	4.0	1,258	873.8	4.4	0.90	34	2.85	ssw.	21.7	1,233	8,700	Electric potential developed suddenly.
9:13	970.5	5.8	63	sw.	1.8	1,500	847.8	2.3	.....	41	2.96	ssw.	22.5	1,470	4,740	Rain 9:04 to 9:06 and 9:24 to 9:30 a. m.
9:20	970.5	5.8	63	sw.	1.3	1,588	839.2	1.6	0.85	43	2.95	ssw.	22.8	1,556	3,400	
						1,654	832.4	1.7	−0.15	29	2.00	ssw.	21.6	1,621	4,000	
						1,750	821.8	0.8	.....	28	1.81	ssw.	21.7	1,715	3,200	
9:35	970.3	6.0	64	se.	1.3	2,000	796.9	−1.5	0.92	26	1.40	ssw.	22.0	1,960	1,120	
9:42	970.3	6.0	64	se.	1.8	2,135	783.6	−3.1	1.19	40	1.88	ssw.	20.6	2,092	0	
						2,250	772.0	−3.8	.....	37	1.64	ssw.	21.5	2,205	50	
9:53	970.2	6.1	63	se.	1.3	2,407	757.0	−4.7	0.59	33	1.36	ssw.	21.7	2,359	390	
						2,500	747.7	−5.6	.....	51	1.94	ssw.	21.0	2,450	590	Altitude of St.Cu. base between 2,500 and 2,600 m.
10:13	970.1	6.4	63	se.	2.2	2,609	737.3	−6.6	0.56	72	2.52	ssw.	20.1	2,556	.....	
10:20	969.9	6.6	61	se.	2.2	2,500	747.2	−6.4	1.04	84	2.99	ssw.	20.4	2,450	1,700	
						2,250	772.0	−3.8	.....	67	2.97	ssw.	22.0	2,205	850	
10:30	969.8	6.7	63	se.	2.2	2,124	783.6	−2.5	0.82	56	2.78	ssw.	22.8	2,082	440	
						2,000	796.3	−1.5	.....	48	2.59	ssw.	22.8	1,960	20	
						1,750	820.9	0.5	.....	31	1.96	ssw.	22.7	1,715	625	
10:54	969.6	7.2	62	se.	2.7	1,720	823.9	0.8	0.37	25	1.62	ssw.	22.7	1,686	650	10/10 A.St., ssw.
						1,500	846.5	1.6	.....	25	1.72	ssw.	21.9	1,470	510	
11:07	969.4	7.5	59	sse.	3.1	1,258	872.1	2.5	0.52	25	1.83	ssw.	21.0	1,233	0	
						1,250	873.4	2.5	.....	25	1.83	ssw.	20.8	1,225	0	
						1,000	900.3	3.8	.....	30	2.41	s.	14.8	980	0	
11:18	969.3	7.8	52	sse.	3.6	762	927.0	5.1	0.79	35	3.08	s.	9.0	747	0	
						750	928.3	5.2	.....	36	3.19	s.	8.8	735	0	
						500	957.1	7.2	.....	50	5.08	sse.	4.0	490	0	
11:31	969.2	8.0	56	sse.	2.2	396	969.2	8.0	.....	56	6.01	sse.	2.2	388	.....	5/10 A.St., ssw.; 5/10 A.Cu., ssw.

November 15, 1915.

A. M.																
8:46	971.3	−3.8	89	ssw.	3.1	396	971.3	− 3.8	.....	89	3.95	ssw.	3.1	388	.....	3/10 Ci., wnw.; 2/10 A.Cu., wnw.
						500	959.1	− 1.4	.....	81	4.41	ssw.	.....	490	40	
8:48	971.3	−3.7	89	ssw.	3.1	545	953.2	− 0.5	−2.21	78	4.57	ssw.	.....	534	60	
						750	929.1	− 1.3	.....	70	3.84	sw.	.....	735	150	
9:04	971.3	−2.8	88	ssw.	3.6	823	920.8	− 1.6	0.40	67	3.53	wsw.	.....	807	210	
9:11	971.2	−2.5	85	ssw.	4.0	930	908.3	− 1.1	−0.47	68	3.79	w.	.....	912	550	
9:28	971.2	−1.9	84	ssw.	4.5	992	901.2	− 1.1	0.00	70	3.90	w.	.....	973	705	
						1,000	900.3	− 1.1	.....	70	3.90	w.	.....	980	750	
						1,250	877.2	− 2.2	.....	73	3.72	w.	.....	1,225	1,380	
						1,500	845.5	− 3.2	.....	75	3.51	w.	.....	1,470	2,010	
9:46	971.0	−1.4	81	sw.	5.4	1,754	818.6	− 4.2	0.41	78	3.35	w.	.....	1,719	2,650	7/10 A.Cu., wnw.
						2,000	792.9	− 5.5	.....	88	3.38	w.	.....	1,960	3,370	
10:08	970.7	−0.8	80	sw.	6.3	2,148	778.6	− 6.3	0.53	94	3.37	w.	.....	2,105	3,800	
						2,250	768.0	− 6.4	.....	95	3.38	w.	.....	2,205	4,320	
						2,500	744.0	− 6.5	.....	98	3.46	w.	.....	2,450	5,220	
10:27	970.6	−0.4	81	sw.	4.9	2,519	742.6	− 6.5	0.05	98	3.46	w.	.....	2,468	5,290	
						2,750	720.8	− 6.2	.....	87	3.15	wnw.	.....	2,694	6,320	
10:55	970.2	0.7	72	sw.	6.7	2,757	719.9	− 6.2	−0.13	87	3.15	wnw.	.....	2,701	6,340	Few Ci., wnw.; 4/10 A.Cu., wnw.
						3,000	697.8	− 7.9	.....	79	2.46	wnw.	.....	2,939	7,130	
11:01	970.2	0.9	71	ssw.	7.2	3,145	684.6	− 8.9	0.70	75	2.14	wnw.	.....	3,081	7,620	
						3,250	675.3	− 9.8	.....	76	2.01	wnw.	.....	3,184	7,950	
						3,500	654.0	−11.7	.....	77	1.72	wnw.	.....	3,429	8,280	
11:10	970.1	1.4	69	ssw.	7.6	3,652	641.2	−12.9	0.79	78	1.56	wnw.	.....	3,577	9,180	
						3,750	633.2	−13.5	.....	82	1.55	wnw.	.....	3,673	9,370	4/10 Ci.Cu., wnw.
						4,000	612.7	−15.2	.....	94	1.52	wnw.	.....	3,918	9,800	
11:49	969.4	3.5	51	ssw.	5.4	4,146	600.3	−16.1	0.70	100	1.49	wnw.	.....	4,060	11,000	4/10 Ci., wnw.
						4,000	612.3	−15.0	.....	100	1.65	wnw.	.....	3,918	10,300	
P. M.																
12:38	968.4	4.9	50	ssw.	10.3	3,766	630.4	−13.3	0.61	100	1.93	wnw.	.....	3,689	9,270	8/10 A.Cu., wnw.
						3,750	632.0	−13.2	.....	100	1.95	wnw.	.....	3,673	9,220	
						3,500	652.3	−11.7	.....	99	2.21	w.	.....	3,429	8,360	
1:06	967.7	6.2	49	ssw.	9.4	3,307	669.0	−10.5	0.52	98	2.43	w.	.....	3,240	7,720	6/10 Ci.Cu., wnw.; 2/10 A.St., wnw.
						3,250	673.7	−10.2	.....	98	2.50	w.	.....	3,184	.....	
						3,000	695.7	− 8.9	.....	98	2.80	w.	.....	2,939	.....	
1:26	967.3	6.2	53	ssw.	8.5	2,770	716.6	− 7.7	.....	98	3.12	w.	.....	2,714	.....	Kites broke away.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 16, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^3 ergs.*	*volts.*	
2:08	966.1	6.0	63	ese.	5.8	396	966.1	6.0	.....	63	5.89	ese.	5.8	388	.....	6/10 Ci., wnw.
2:12	966.1	5.9	63	ese.	5.4	478	956.5	4.0	2.44	66	5.37	ese.	6.8	469	0	
						500	953.9	3.8	.....	67	5.37	ese.	7.0	490	0	
2:31	965.8	6.1	63	ese.	6.7	740	925.7	1.4	0.99	71	4.80	ese.	7.5	726	0	
						750	924.8	1.5	.....	71	4.84	ese.	7.5	735	0	
						1,000	896.8	2.9	.....	65	4.89	se.	8.0	980	240	
						1,250	869.7	4.4	.....	60	5.02	sse.	8.5	1,225	780	
3:01	965.6	6.9	59	ese.	7.2	1,381	855.3	5.1	−0.58	57	5.01	s.	8.8	1,354	1,060	8/10 Ci., wnw.
						1,500	843.0	4.7	.....	55	4.70	s.	8.8	1,470	1,300	
3:42	965.3	7.1	61	ese.	6.3	1,677	824.5	4.0	0.37	53	4.31	ssw.	8.7	1,644	1,450	
						1,750	817.2	3.6	.....	52	4.11	ssw.	9.7	1,735	1,480	
						2,000	792.4	2.1	.....	47	3.34	ssw.	13.0	1,960	1,240	
						2,250	868.1	0.6	.....	43	2.74	ssw.	16.3	2,205	.....	
4:04	965.2	5.6	66	ese.	5.8	2,200	764.3	0.4	0.64	42	2.64	ssw.	16.8	2,244	.....	
						2,250	868.1	0.7	.....	42	2.70	ssw.	16.2	2,205	.....	
						2,000	792.4	2.4	.....	41	2.98	ssw.	12.3	1,960	1,060	
						1,750	817.2	4.2	.....	40	3.30	ssw.	8.4	1,715	1,020	
4:16	965.2	5.5	68	ese.	5.8	1,646	827.9	4.9	0.34	40	3.46	ssw.	6.8	1,613	1,000	3/10 Ci., wnw.; 4/10 A.Cu., w.
						1,500	843.0	5.4	.....	39	3.50	ssw.	8.9	1,470	910	
4:26	965.2	5.3	67	ese.	5.4	1,297	864.0	6.1	−0.38	38	3.58	s.	11.8	1,271	770	
						1,250	869.6	5.9	.....	38	3.53	s.	11.9	1,225	740	
4:32	965.2	5.2	68	ese.	4.5	1,037	891.0	5.1	−1.70	39	3.43	sse.	12.5	1,017	480	
						1,000	896.2	4.5	.....	42	3.54	se.	12.9	980	420	
4:35	965.2	5.1	68	ese.	4.5	861	911.4	2.1	0.58	52	3.70	ese.	14.5	844	260	
						750	924.0	2.7	.....	56	4.16	ese.	12.1	735	200	
						500	953.0	4.2	.....	65	5.36	ese.	6.6	490	60	
4:44	965.2	4.8	69	ese.	4.5	396	965.2	4.8	.....	69	5.93	ese.	4.5	388	.....	8/10 Ci., wnw.; 2/10 A.St., wn.

November 17, 1915.

A. M.																
10:06	964.5	4.9	68	se.	10.3	396	964.5	4.9	.....	68	5.89	se.	10.3	388	.....	4/10 A.St., sw.; 6/10 St.Cu., s.
						500	952.8	4.3	.....	68	5.65	se.	11.7	490	120	
						750	923.9	2.8	.....	70	5.23	sse.	15.0	735	450	
10:12	964.5	5.0	67	se.	8.9	813	916.3	2.4	0.60	70	5.08	sse.	15.9	797	520	
10:18	964.6	5.0	68	se.	7.2	845	912.8	3.4	−3.12	67	5.23	sse.	20.6	828	570	
						1,000	895.2	2.6	.....	67	4.94	sse.	18.0	980	820	
						1,250	868.0	1.4	.....	66	4.46	sse.	13.7	1,225	1,350	1/10 A.St., sw.; 9/10 St.Cu., s.
						1,500	841.8	0.2	.....	65	4.03	sse.	9.5	1,470	1,770	
11:27	964.5	5.4	68	ese.	5.8	1,602	830.9	−0.3	0.49	65	3.87	sse.	7.7	1,570	2,210	
						1,750	816.0	0.5	.....	62	3.92	sse.	13.3	1,715	2,580	
						2,000	791.0	2.0	.....	57	4.02	sse.	22.7	1,960	3,200	
11:33	964.4	5.5	68	ese.	5.8	2,051	785.6	2.3	−0.58	56	4.04	sse.	24.7	2,010	3,352	
						2,250	766.7	0.5	.....	53	3.35	sse.	24.9	2,205	3,820	
						2,500	7,430	−1.8	.....	50	2.63	sse.	25.1	2,450	4,380	
11:36	964.4	5.5	70	se.	7.2	2,695	724.9	−3.5	0.90	47	2.14	sse.	25.3	2,641	4,110	
						2,750	720.0	−4.0	.....	48	2.10	sse.	24.7	2,694	4,040	
11:42	964.3	5.7	68	se.	7.2	2,942	702.4	−5.6	0.89	51	1.94	sse.	22.9	2,882	.....	Weather threatening.
						2,750	720.0	−3.8	.....	47	2.09	sse.	23.1	2,694	3,940	
						2,500	743.0	−1.5	.....	42	2.26	sse.	23.4	2,450	3,400	
P. M.																
12:00	964.1	6.5	67	se.	5.4	2,272	764.1	0.6	0.46	37	2.36	sse.	23.6	2,227	3,000	
						2,250	766.1	0.7	.....	37	2.38	sse.	23.2	2,205	2,950	
12:19	964.0	6.6	65	se.	5.4	2,099	780.5	1.4	−0.29	37	2.50	sse.	19.7	2,057	2,480	
						2,000	790.0	1.1	.....	46	3.05	sse.	18.1	1,960	2,190	
12:28	964.0	6.6	66	se.	5.8	1,860	804.0	0.7	−0.61	58	3.73	sse.	15.8	1,823	1,900	
						1,750	815.0	0.0	.....	60	3.67	sse.	14.1	1,715	1,770	
12:30	964.0	6.6	66	se.	5.8	1,598	830.9	−0.9	0.52	64	3.63	sse.	11.7	1,566	1,570	
						1,500	840.8	−0.4	.....	69	4.08	sse.	12.0	1,470	1,450	
12:42	964.0	6.8	65	se.	5.4	1,288	863.6	0.7	0.60	81	5.21	s.	12.5	1,263	1,190	
						1,250	867.1	0.9	.....	80	5.22	s.	12.3	1,225	1,140	
						1,000	894.7	2.4	.....	77	5.59	sse.	10.9	980	480	
12:46	963.9	6.8	64	se.	5.4	840	912.8	3.4	−1.29	75	5.85	se.	10.1	824	40	
12:50	963.9	6.8	65	se.	5.4	809	916.3	3.0	0.92	75	5.68	se.	10.6	793	0	
						750	922.9	3.5	.....	73	5.73	se.	9.8	735	0	
						500	951.5	5.8	.....	67	6.18	se.	6.3	490	0	
12:57	963.9	6.8	64	se.	4.9	396	963.9	6.8	.....	64	6.32	se.	4.9	388	.....	10/10 St., s.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 18, 1915.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°C.	%		*m. p. s.*	*m.*	*mb.*	°C.		%	*mb.*		*m. p. s.*	10^5 *ergs.*	*volts.*	
1:20	961.6	2.4	83	nw.	4.9	396	961.6	2.4	.....	83	6.03	nw.	4.9	388	.....	10/10 St.Cu., nw.
						500	949.0	1.4	.....	85	5.75	nw.	7.2	490	0	Altitude of St.Cu., base about 700 m.
						750	919.8	−0.9	.....	90	5.10	wnw.	12.5	735	80	
1:42	961.0	3.3	80	nw.	4.5	870	905.9	−2.0	0.93	92	4.76	wnw.	15.0	853	300	5/10 Ci. & Ci.Cu., wsw.
1:57	960.8	3.8	77	nw.	3.1	995	891.7	2.8	−3.84	34	2.54	nw.	21.0	975	590	4/10 Cu., nw.; 8/10 Ci., wsw.
						1,000	891.1	2.7	.....	34	2.52	nw.	21.0	980	600	
						1,250	864.2	0.0	.....	45	2.75	wnw.	21.0	1,225	1,120	Few Cu., nw.; 7/10 Ci., sw.
2:32	960.4	4.7	72	nw.	3.6	1,297	858.5	−0.5	1.09	47	2.45	wnw.	21.0	1,271	1,160	
2:33	960.4	4.6	72	nw.	3.6	1,364	851.6	0.6	−1.64	42	2.68	wnw.	21.0	1,337	1,230	
						1,500	837.3	−0.4	.....	37	2.19	wnw.	21.5	1,470	1,380	
2:42	960.3	4.5	72	nw.	3.6	1,625	824.1	−1.2	0.69	33	1.82	wnw.	22.0	1,593	1,500	
						1,750	811.2	−1.6	.....	32	1.71	wnw.	22.0	1,715	1,700	
						2,000	785.9	−2.3	.....	31	1.56	wnw.	22.1	1,960	2,080	
3:00	960.1	5.0	70	nw.	3.6	2,091	777.0	−2.6	0.30	30	1.48	wnw.	22.1	2,049	2,200	St.Cu. forming.
						2,250	762.0	−4.3	.....	56	2.39	wnw.	24.0	2,205	.....	
3:29	960.3	4.9	71	n.	2.2	2,262	760.4	−4.4	0.76	58	2.45	wnw.	24.2	2,217	.....	
						2,250	762.0	−4.4	.....	59	2.49	wnw.	24.3	2,205	.....	
						2,000	785.9	−3.2	.....	74	3.46	wnw.	25.4	1,960	1,770	
3:50	960.4	4.9	71	n.	3.1	1,875	798.6	−2.6	0.00	82	4.03	wnw.	25.9	1,838	1,700	
						1,750	811.2	−2.6	.....	92	4.53	wnw.	26.3	1,715	1,330	
4:06	960.5	5.1	70	nnw.	2.7	1,660	820.6	−2.6	−2.86	100	4.92	wnw.	26.5	1,627	1,060	
4:10	960.6	5.1	70	nnw.	2.7	1,646	822.3	−3.0	0.64	93	4.42	wnw.	26.0	1,613	1,000	10/10 St.Cu., nw.
						1,500	837.3	−2.1	.....	87	4.46	wnw.	24.4	1,470	630	
4:16	960.6	5.1	70	n.	2.2	1,254	863.7	−0.5	0.34	76	4.45	wnw.	21.6	1,229	0	
						1,000	891.1	0.4	.....	77	4.84	nw.	16.2	960	0	
4:25	960.8	4.8	73	n.	2.7	761	918.5	1.2	0.90	77	5.13	nnw.	11.2	746	0	
						750	919.8	1.3	.....	77	5.17	nnw.	10.9	735	0	
						500	948.0	3.6	.....	75	5.93	n.	5.1	490	0	
4:36	960.8	4.5	74	nne.	2.7	396	960.8	4.5	.....	74	6.23	nne.	2.7	388	.....	1/10 Ci., sw.; 9/10 St.Cu., nnw.

November 19, 1915.

P. M.																
1:13	965.0	1.8	74	nw.	8.9	396	965.0	1.8	.....	74	5.15	nw.	8.9	388	.....	1/10 Cu., nw.
						500	952.3	0.5	.....	76	4.81	nw.	11.1	490	70	
						750	923.5	−2.5	.....	81	4.02	wnw.	15.5	735	230	
1:22	965.0	2.6	62	nw.	10.3	800	917.6	−3.1	1.21	82	3.86	wnw.	16.5	784	260	
						1,000	894.9	−4.6	.....	86	3.57	wnw.	17.1	980	740	
1:29	965.0	2.7	60	nw.	9.8	1,187	873.3	−5.9	0.72	89	3.30	wnw.	17.7	1,164	1,200	Altitude of Cu. base about 1,200 m.
						1,250	867.0	−3.5	.....	78	3.56	nw.	20.1	1,225	1,400	
1:37	964.9	3.0	58	nnw.	10.3	1,316	859.4	−1.0	−3.80	67	3.77	nw.	22.7	1,290	1,590	
						1,500	839.8	−2.0	.....	54	2.79	nw.	22.4	1,470	2,120	
						1,750	813.5	−3.4	.....	37	1.70	nw.	22.0	1,715	2,600	
1:59	964.8	3.2	56	nw.	8.5	1,854	803.0	−3.9	0.54	30	1.32	nw.	21.8	1,817	2,780	Few Cu., nw.
2:07	964.8	3.4	56	nw.	9.8	1,987	789.7	−2.3	−1.20	21	1.06	nw.	24.4	1,947	3,050	
						2,000	788.0	−2.4	.....	.....	.....	nw.	24.3	1,960	3,080	
2:25	964.6	3.7	51	nw.	9.4	2,245	764.6	−3.9	0.46	.....	.....	nw.	23.5	2,200	3,700	
						2,000	789.1	−3.2	.....	.....	.....	nw.	23.1	1,960	2,800	
2:48	964.5	4.4	54	nw.	7.6	1,776	811.4	−2.5	−1.22	.....	.....	nw.	22.8	1,741	2,280	Few Ci., nw.
						1,750	814.8	−2.8	.....	.....	.....	nw.	22.7	1,715	2,220	
2:50	964.5	4.4	54	nw.	7.6	1,727	816.6	−3.1	0.50	.....	.....	nw.	22.6	1,693	2,170	
						1,500	840.8	−2.0	.....	.....	.....	nw.	22.0	1,470	1,640	
3:05	964.5	4.7	51	nw.	5.4	1,384	852.5	−1.4	−2.29	21	1.14	nw.	21.7	1,357	1,350	
3:07	964.5	4.8	50	nw.	5.4	1,288	862.9	−3.6	0.63	28	1.27	nw.	20.8	1,263	1,100	
						1,250	866.6	−3.4	.....	32	1.47	nw.	20.2	1,225	1,030	
3:16	964.5	5.0	50	nw.	4.5	1,114	882.1	−2.5	0.91	45	2.23	nw.	18.1	1,092	790	
						1,000	894.9	−1.5	.....	48	2.59	nw.	15.7	980	580	
3:23	964.5	5.0	50	nw.	6.3	784	919.3	0.5	1.24	53	3.35	nw.	11.0	769	170	
						750	923.5	0.9	.....	53	3.46	nw.	10.6	735	160	
						500	952.0	4.0	.....	50	4.06	wnw.	8.2	490	50	
3:28	964.5	5.3	49	wnw.	7.2	396	964.5	5.3	.....	49	4.37	wnw.	7.2	388	.....	Few Ci., nw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 20, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^6 *ergs.*	*volts.*	
8:22	958.3	3.0	68	nnw.	4.0	396	958.3	3.0	.....	68	5.15	nnw.	4.0	388	.....	9/10 Ci., nw.
						500	946.0	3.8	.....	66	5.29	nnw.	6.8	490	0	
						750	918.0	5.6	.....	62	5.64	n.	13.9	735	0	
8:26	958.3	3.1	69	nnw.	4.5	782	914.1	5.8	−0.73	61	5.62	n.	14.8	767	0	
8:34	958.5	3.5	67	n.	5.4	994	890.9	5.9	−0.05	43	3.99	n.	14.7	975	420	3/10 Ci., nw.; 7/10 Ci.St., nw.
						1,000	890.8	5.8	.....	43	3.96	n.	14.6	980	430	
						1,250	863.7	4.7	.....	39	3.33	nnw.	11.1	1,225	920	
8:57	958.7	4.2	68	n.	4.9	1,357	852.5	4.2	0.47	38	3.14	nnw.	9.5	1,330	1,150	
						1,500	837.1	3.7	.....	42	3.34	nnw.	8.6	1,470	1,300	4/10 Ci., wnw.; 6/10 Ci.St., wnw.
9:33	959.2	4.9	65	n.	4.9	1,627	824.9	3.2	0.37	45	3.46	nnw.	7.7	1,595	1,550	
						1,750	812.1	2.7	.....	46	3.41	nnw.	9.0	1,715	1,800	
						2,000	787.8	1.8	.....	49	3.41	nnw.	11.8	1,960	2,320	
						2,250	762.9	0.9	.....	52	3.39	nw.	14.6	2,205	2,930	
						2,500	740.1	0.0	.....	54	3.30	nw.	17.4	2,450	3,340	
						2,750	717.9	−0.9	.....	57	3.23	nw.	20.2	2,694	3,850	
9:45	959.3	5.0	64	n.	4.5	2,830	710.7	−1.2	0.37	58	3.21	nw.	21.2	2,773	4,000	
						3,000	695.4	−2.0	.....	57	2.95	nw.	22.3	2,939	4,600	
10:10	959.6	4.8	64	nnw.	4.5	3,196	678.7	−3.0	0.49	55	2.61	wnw.	23.7	3,131	5,090	10/10 A.St., wnw.
						3,250	673.9	−3.4	.....	56	2.58	wnw.	24.0	3,184	5,210	
						3,500	652.9	−5.4	.....	58	2.25	wnw.	25.3	3,429	5,670	
10:21	959.7	5.2	62	nnw.	4.5	3,656	639.5	−6.6	0.76	60	2.10	wnw.	26.2	3,581	5,800	
						3,500	652.9	−5.5	.....	60	2.30	wnw.	24.7	3,429	5,450	
10:35	959.9	5.4	63	nnw.	5.4	3,272	670.7	−3.8	−0.48	59	2.62	wnw.	22.4	3,205	4,940	
						3,250	673.9	−3.9	.....	60	2.65	wnw.	22.4	3,184	4,890	
10:38	959.9	5.4	63	n.	5.8	3,105	685.0	−4.6	0.49	66	2.74	wnw.	22.4	3,042	4,560	
						3,000	695.4	−4.1	.....	69	2.99	wnw.	21.6	2,939	4,320	
10:41	959.9	5.5	64	n.	5.8	2,941	699.5	−3.8	0.79	71	3.15	wnw.	21.2	2,881	4,190	
10:45	960.0	5.6	64	n.	4.9	2,815	710.7	−4.8	0.47	82	3.35	wnw.	20.6	2,758	3,900	
						2,750	717.9	−4.5	.....	94	3.94	wnw.	19.5	2,694	3,760	
10:54	960.0	5.8	60	n.	4.9	2,729	718.7	−4.4	0.91	98	4.14	wnw.	19.1	2,674	3,700	
						2,500	740.1	−2.3	.....	93	4.69	wnw.	19.2	2,450	3,260	
11:07	960.1	6.4	56	nnw.	6.7	2,376	751.5	−1.2	0.62	91	5.03	wnw.	19.3	2,328	3,000	
						2,250	762.9	−0.4	.....	88	5.20	wnw.	18.7	2,205	2,660	
						2,000	787.8	1.1	.....	82	5.43	wnw.	17.6	1,960	2,100	
11:18	960.3	6.6	54	nnw.	6.7	1,896	797.8	1.8	−0.16	79	5.50	wnw.	17.1	1,858	1,900	
						1,750	812.8	1.5	.....	73	4.97	wnw.	15.4	1,715	1,720	
11:30	960.4	6.9	51	nnw.	6.7	1,529	835.2	1.2	0.26	64	4.26	wnw.	12.8	1,499	1,450	
						1,500	838.2	1.2	.....	64	4.26	wnw.	12.8	1,470	1,420	
						1,250	865.0	1.9	.....	62	4.35	nw.	12.7	1,225	1,100	
						1,000	892.0	2.5	.....	60	4.39	nnw.	12.6	980	700	
11:50	960.5	7.4	49	n.	5.8	833	910.5	3.0	0.96	59	4.47	nnw.	12.6	817	380	
						750	920.0	3.8	.....	57	4.57	nnw.	11.5	735	310	
						500	948.1	6.2	.....	52	4.93	nnw.	8.1	490	100	
NOON	960.5	7.2	50	nnw.	6.7	396	960.5	7.2	.....	50	5.08	nnw.	6.7	388	.....	10/10 A.St., wnw.

November 22, 1915.

A. M.																
8:35	962.6	2.4	53	s.	8.0	396	962.6	2.4	.....	53	3.85	s.	8.0	388	.....	Few Ci., wnw.; few A.Cu., wnw.
						500	950.6	2.3	.....	52	3.75	s.	10.6	490	0	
						750	921.3	2.1	.....	50	3.56	ssw.	16.8	735	0	
8:42	962.6	2.5	54	s.	6.7	785	917.4	2.1	0.08	50	3.56	ssw.	17.7	770	860	
						1,000	893.1	0.9	.....	50	3.26	ssw.	22.2	980	1,360	
8:45	962.5	2.6	54	s.	6.7	1,022	890.6	0.8	0.55	50	3.24	ssw.	22.6	1,002	1,420	
						1,250	865.8	2.6	.....	52	3.83	sw.	20.4	1,225	1,960	
						1,500	840.0	4.7	.....	54	4.61	wsw.	17.9	1,470	2,570	
9:06	962.3	3.5	52	s.	6.3	1,649	824.6	5.9	−0.81	55	5.11	w.	16.5	1,616	2,940	
9:09	962.3	3.6	51	s.	6.7	1,733	816.3	5.9	0.00	55	5.11	w.	17.8	1,699	3,130	
						1,750	814.7	5.8	.....	54	4.98	w.	18.0	1,715	3,160	
						2,000	790.1	4.8	.....	52	4.47	w.	19.9	1,960	3,600	
9:26	962.1	4.6	50	s.	9.8	2,164	774.3	4.2	0.39	50	4.12	w.	21.2	2,121	3,900	
						2,250	766.1	3.7	.....	50	3.98	w.	21.3	2,205	4,100	
						2,500	742.9	2.2	.....	51	3.65	wnw.	21.5	2,450	4,700	
						2,750	720.5	0.7	.....	52	3.34	wnw.	21.7	2,694	5,300	
9:40	961.6	6.0	44	ssw.	12.5	2,878	708.6	0.0	0.59	52	3.18	nw.	21.8	2,820	5,600	Few Ci., wnw.
						3,000	693.4	−1.5	.....	41	2.21	nw.	22.4	2,939	5,750	
10:05	961.4	6.6	42	ssw.	13.0	3,006	697.4	−1.6	1.25	41	2.19	nw.	22.4	2,945	5,750	
						3,250	677.0	−3.8	.....	46	2.04	nw.	24.2	3,184	6,280	
						3,500	655.9	−5.9	.....	52	1.93	wnw.	26.1	3,429	6,860	
10:27	961.3	7.2	44	sw.	11.6	3,569	650.0	−6.5	0.87	53	1.87	wnw.	26.6	3,496	7,020	
						3,750	635.0	−8.2	.....	48	1.46	wnw.	25.7	3,673	7,440	
10:55	961.0	8.1	41	sw.	12.1	3,900	622.0	−9.6	0.80	44	1.18	w.	25.0	3,820	.....	3/10 Ci., wnw.
						3,750	635.0	−8.6	.....	48	1.41	w.	24.5	3,673	.....	
						3,500	655.9	−7.0	.....	55	1.86	w.	23.7	3,429	.....	
11:20	961.0	8.8	40	sw.	9.8	3,478	656.1	−6.8	0.67	56	1.93	w.	23.6	3,407	5,200	
						3,250	677.0	−5.3	.....	57	2.23	w.	23.4	3,184	4,810	
						3,000	693.4	−3.6	.....	58	2.62	w.	23.2	2,939	4,370	
11:32	961.0	9.5	41	wsw.	10.7	2,910	705.4	−3.0	1.14	58	2.76	w.	23.2	2,851	4,220	
						2,750	720.5	−1.2	.....	55	3.04	w.	24.5	2,694	3,940	
11:41	961.0	9.4	41	wsw.	9.8	2,673	726.6	−0.3	0.83	54	3.22	w.	25.1	2,619	3,800	
						2,500	742.9	1.1	.....	51	3.37	w.	23.6	2,450	3,520	
						2,250	766.1	3.2	.....	47	3.61	w.	21.5	2,205	3,120	
11:50	961.0	9.7	42	wsw.	8.9	2,178	772.6	3.8	0.06	46	3.69	w.	20.9	2,134	3,000	
						2,000	790.1	3.9	.....	50	4.04	w.	21.0	1,960	2,820	
						1,750	814.7	4.1	.....	57	4.67	wnw.	21.2	1,715	2,560	
P. M.																
12:10	961.0	10.0	42	w.	9.8	1,699	819.6	4.1	0.97	58	4.75	nw.	21.2	1,665	2,500	Parhelia.
12:14	961.2	10.0	42	w.	9.8	1,565	833.2	5.4	−0.89	58	5.20	nw.	24.8	1,534	2,290	
						1,500	840.0	4.8	.....	58	4.99	nw.	24.8	1,470	2,180	
12:16	961.2	10.0	42	w.	10.3	1,430	847.0	4.2	0.38	59	4.87	nw.	24.8	1,402	2,060	
12:25	961.2	10.2	42	wnw.	11.2	1,248	866.1	4.9	−0.56	56	4.85	nnw.	26.0	1,223	1,760	
12:28	961.2	10.4	42	wnw.	9.4	1,069	885.4	3.9	0.46	57	4.61	nw.	18.4	1,048	1,320	
						1,000	893.1	4.2	.....	56	4.62	nw.	17.6	980	880	
12:33	961.3	10.8	42	wnw.	8.5	830	912.1	5.0	1.38	55	4.80	wnw.	15.7	814	700	
						750	921.3	6.1	.....	52	4.90	wnw.	14.0	735	500	
						500	950.6	9.5	.....	44	5.22	wnw.	8.5	490	150	
12:45	961.3	11.0	40	wnw.	6.3	396	961.3	11.0	.....	40	5.25	wnw.	6.3	388	.....	Few Ci., wnw.; few A.Cu., wnw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 23, 1915.

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^6 *ergs.*	*volts.*	
8:51	969.8	0.6	70	w.	5.4	396	969.8	0.6	.....	70	4.47	w.	5.4	388	.....	1/10 Cl., nw.
						500	957.3	1.3	.....	67	4.50	w.	6.4	490	0	
						750	928.7	3.1	.....	61	4.65	wnw.	9.0	735	0	
9:03	969.9	1.0	69	w.	4.5	791	923.7	3.4	−0.71	60	4.68	nw.	9.4	776	0	
						1,000	900.1	4.9	.....	54	4.68	nw.	13.0	980	260	
9:12	969.9	1.4	65	w.	4.5	1,015	898.7	5.0	−0.71	53	4.62	wnw.	13.0	995	270	
						1,250	872.9	3.9	.....	48	3.88	wnw.	13.4	1,225	560	
9:18	970.1	1.6	65	wnw.	4.9	1,338	863.9	3.4	0.50	46	3.59	wnw.	13.6	1,312	660	5/10 Cl., nw.
						1,500	846.5	2.8	.....	44	3.29	wnw.	15.0	1,470	1,130	
						1,750	821.0	1.9	.....	41	2.87	wnw.	17.1	1,715	1,600	
						2,000	796.0	1.0	.....	38	2.50	wnw.	19.2	1,960	2,120	
9:40	970.1	2.9	63	w.	4.9	2,019	794.1	0.9	0.37	38	2.48	wnw.	19.4	1,979	2,160	
9:42	970.1	2.9	63	w.	4.9	2,173	779.2	2.2	−0.84	39	2.79	wnw.	22.9	2,130	2,450	
						2,250	771.8	1.8	.....	39	2.71	wnw.	23.6	2,205	2,590	
						2,500	748.0	0.5	.....	38	2.41	wnw.	25.2	2,450	3,120	
9:58	970.2	3.7	59	w.	3.6	2,648	734.8	−0.3	0.53	38	2.26	wnw.	26.9	2,595	3,470	
10:01	970.2	3.8	59	wnw.	3.6	2,683	731.5	−0.2	−0.29	37	2.22	wnw.	27.5	2,629	3,550	
						2,750	725.2	−0.5	.....	37	2.17	wnw.	28.0	2,694	3,700	
						3,000	703.0	−1.6	.....	39	2.09	wnw.	29.6	2,939	.....	
10:20	969.9	4.8	53	wnw.	3.1	3,080	696.3	−2.0	0.48	39	2.02	wnw.	30.1	3,018	.....	
						3,000	703.0	−1.6	.....	38	2.03	wnw.	29.1	2,939	.....	
						2,750	725.2	−0.3	.....	36	2.15	wnw.	25.9	2,694	3,550	
						2,500	748.0	0.9	.....	33	2.15	wnw.	22.8	2,450	2,670	
10:56	969.3	6.4	46	w.	3.1	2,456	752.8	1.1	0.66	33	2.18	wnw.	22.2	2,407	2,500	
						2,250	771.8	2.5	.....	31	2.27	wnw.	18.2	2,205	1,920	
11:21	968.9	6.8	43	wsw.	2.2	2,105	785.8	3.4	−0.41	29	2.26	wnw.	15.3	2,063	1,580	
						2,000	796.0	3.0	.....	30	2.27	w.	15.3	1,960	1,440	
11:23	968.9	7.0	42	wsw.	2.2	1,935	802.5	2.7	0.60	30	2.23	w.	15.3	1,896	1,360	
						1,750	821.0	3.8	.....	30	2.41	w.	17.5	1,715	1,120	
						1,500	846.5	5.3	.....	31	2.76	wsw.	20.3	1,470	790	
11:29	968.8	7.6	41	sw.	2.2	1,367	860.4	6.1	−1.45	31	2.92	wsw.	21.8	1,340	630	
11:31	968.8	7.7	42	s.	2.2	1,284	869.0	4.9	3.33	30	2.60	sw.	22.4	1,259	500	
						1,250	872.4	6.0	.....	29	2.71	sw.	20.3	1,225	600	
11:45	968.5	7.6	41	s.	2.2	1,233	874.2	6.6	0.28	28	2.73	sw.	19.3	1,209	650	
						1,000	899.1	6.0	.....	27	2.52	ssw.	13.8	980	620	
11:58	968.3	8.5	41	ssw.	2.7	909	909.4	5.7	−0.55	27	2.47	ssw.	11.7	891	530	
						750	927.2	4.8	.....	29	2.49	ssw.	8.9	735	360	
P. M.																
12:01	968.3	8.6	42	sse.	2.7	561	948.9	3.8	2.91	32	2.57	s.	5.6	550	170	
						550	956.0	5.5	.....	36	3.25	s.	4.5	490	110	
12:04	968.3	8.6	43	sse.	2.7	396	968.3	8.6	.....	43	4.80	sse.	2.7	388	.....	4/10 Cl., nw.

November 24, 1915.

A. M.																
8:27	952.6	8.0	67	sse.	6.3	396	952.6	8.0	.....	67	7.19	sse.	6.3	388	.....	5/10 Cl. St., wsw.; 4/10 A. St., sw.
						500	940.3	8.0	.....	69	7.40	sse.	9.3	490	240	
						750	912.1	7.9	.....	73	7.77	s.	16.6	735	810	
8:36	952.5	8.2	68	sse.	6.3	910	895.0	7.9	0.02	75	7.99	ssw.	21.2	892	1,250	
						1,000	885.0	9.1	.....	66	7.63	ssw.	19.4	980	1,540	
8:44	952.5	8.4	68	sse.	6.7	1,176	866.9	11.5	−1.35	47	6.38	ssw.	15.8	1,153	2,100	
						1,250	859.1	12.3	.....	45	6.44	ssw.	15.9	1,225	2,200	
						1,500	834.2	15.1	.....	37	6.35	ssw.	16.2	1,470	2,530	
8:52	952.4	8.4	68	sse.	6.7	1,679	816.9	17.0	−1.09	31	6.01	ssw.	16.5	1,646	2,770	
						1,750	810.0	16.4	.....	30	5.60	ssw.	17.5	1,715	2,860	
8:55	952.3	8.4	68	sse.	6.3	1,853	800.1	15.7	0.75	28	5.00	ssw.	19.2	1,816	3,000	1/10 Cl. St., wsw.; 9/10 A. St., sw.
						2,000	786.4	14.6	.....	26	4.32	ssw.	19.7	1,960	3,300	
						2,250	763.8	12.8	.....	22	3.40	ssw.	20.6	2,205	3,600	
9:13	952.0	8.5	70	sse.	7.6	2,452	745.2	11.4	0.72	21	2.83	ssw.	21.3	2,403	4,230	7/10 Cl., wsw.; 2/10 A. St., sw.
						2,500	741.2	11.0	.....	.....	.....	ssw.	21.2	2,450	4,350	
						2,750	719.1	9.3	.....	.....	.....	ssw.	20.9	2,694	4,920	
10:13	951.0	10.9	63	sse.	10.7	2,934	703.0	8.1	0.92	.....	.....	ssw.	20.6	2,875	5,300	
						2,750	718.2	10.2	.....	.....	.....	ssw.	20.0	2,694	3,930	5/10 Cl., wsw.; 4/10 Cl. St., wsw.
						2,500	739.5	13.1	.....	.....	.....	ssw.	19.2	2,450	3,350	
11:05	949.8	12.5	60	sse.	14.3	2,361	751.9	14.8	0.43	.....	.....	ssw.	18.7	2,314	3,000	Few A. Cu., sw.; 10/10 Cl. St., wsw.
						2,250	761.6	15.3	.....	.....	.....	ssw.	19.0	2,205	2,860	
						2,000	784.5	16.3	.....	.....	.....	ssw.	19.5	1,960	2,540	
						1,750	808.0	17.4	.....	.....	.....	ssw.	20.1	1,715	2,230	
11:13	949.7	12.4	59	s.	15.2	1,635	818.6	17.9	−2.67	.....	.....	ssw.	20.3	1,602	2,090	
						1,500	831.8	14.3	.....	.....	.....	ssw.	19.6	1,470	1,920	
11:27	949.4	12.5	60	s.	11.6	1,287	853.0	8.6	0.72	.....	.....	ssw.	18.4	1,262	1,670	
						1,250	856.9	8.8	.....	.....	.....	ssw.	19.0	1,225	1,630	
11:35	949.2	12.7	58	s.	14.8	1,149	866.9	9.6	−1.26	29	3.47	ssw.	20.6	1,126	1,500	
						1,000	882.8	7.7	.....	37	3.89	s.	20.3	980	1,120	
11:38	949.2	12.9	58	s.	14.3	935	889.7	6.9	1.01	41	4.08	s.	20.1	917	920	
11:43	949.0	13.0	58	s.	13.9	787	905.7	8.4	1.13	67	7.38	s.	16.5	772	570	
						750	909.9	8.8	.....	66	7.48	s.	16.0	735	460	
						500	937.3	11.6	.....	60	8.20	s.	12.9	490	140	
11:49	948.9	12.8	57	s.	11.6	396	948.9	12.8	.....	57	8.42	s.	11.6	388	.....	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 26, 1915.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°C.	%		*m. p. s.*	*m.*	*mb.*	°C.		%	*mb.*		*m. p. s.*	10^5 *ergs.*	*volts.*	
8:42	963.3	−2.4	87	nw.	4.5	396	963.3	− 2.4	.....	87	4.35	nw.	4.5	388	.....	Cloudless.
						500	951.2	− 0.9	.....	83	4.71	nw.	9.0	490	50	
8:46	963.4	−2.2	87	nw.	4.5	718	925.6	2.2	−1.43	76	5.44	nw.	18.3	704	140	
						750	922.3	2.2	.....	76	5.44	nw.	18.2	735	150	
8:54	963.4	−1.9	87	nw.	3.6	844	911.2	2.1	0.08	75	5.33	nnw.	17.8	828	280	
						1,000	894.1	1.4	.....	70	4.73	nnw.	16.1	980	520	
9:06	963.4	−1.8	85	nw.	2.7	1,193	872.4	0.5	0.46	64	4.05	nnw.	14.0	1,140	810	
						1,250	866.2	0.4	.....	63	3.96	nnw.	14.0	1,225	920	
						1,500	840.0	− 0.2	.....	61	3.67	nnw.	13.8	1,470	1,360	
9:22	963.4	−0.8	84	nw.	2.2	1,506	839.4	− 0.2	0.22	61	3.67	nnw.	13.8	1,476	1,370	
9:25	963.4	−0.6	83	nw.	2.2	1,572	832.6	0.4	−0.91	54	3.40	nnw.	13.0	1,541	1,480	
						1,750	814.5	− 0.3	.....	47	2.80	nnw.	15.0	1,715	1,840	
						2,000	789.3	− 1.2	.....	36	1.99	nnw.	17.7	1,960	2,420	
9:43	963.4	0.6	79	n.	2.7	2,108	778.8	− 1.6	0.37	32	1.71	nnw.	18.9	2,066	2,670	
						2,250	765.1	− 0.1	.....	30	1.82	nnw.	20.6	2,205	3,000	
9:47	963.4	0.7	79	n.	2.7	2,367	754.0	1.2	−1.08	29	1.93	nnw.	22.0	2,319	3,280	
						2,500	742.0	0.7	.....	29	1.86	nw.	22.0	2,450	3,610	
9:56	963.4	0.9	79	nnw.	2.7	2,547	737.4	0.5	0.39	29	1.84	nw.	22.0	2,496	3,720	
9:58	963.4	0.9	79	nnw.	2.7	2,634	729.4	1.8	−1.49	29	2.02	nw.	22.0	2,581	3,930	
						2,750	719.3	0.5	.....	28	1.77	nw.	21.1	2,694	4,210	
						3,000	697.0	− 2.3	.....	27	1.36	nw.	19.0	2,949	4,530	
10:27	963.3	2.3	66	nnw.	3.6	3,069	690.8	− 3.0	1.11	27	1.28	nw.	18.5	3,007	4,610	
						3,250	675.1	− 3.0	.....	23	1.09	nw.	23.3	3,184	4,840	
10:37	963.3	2.7	62	nnw.	2.7	3,276	673.2	− 3.0	0.00	23	1.09	nw.	24.0	3,209	4,880	
						3,500	654.1	− 5.4	.....	22	0.85	wnw.	25.7	3,429	5,160	
11:05	963.2	3.5	63	nw.	3.6	3,630	643.6	− 6.8	1.07	21	0.72	wnw.	26.5	3,556	5,410	
						3,750	633.7	− 7.6	.....	22	0.71	wnw.	26.9	3,673	5,740	
						4,000	613.4	− 9.4	.....	22	0.60	wnw.	27.8	3,918	6,410	
						4,250	594.5	−11.2	.....	23	0.54	wnw.	28.7	4,162	7,010	
11:31	962.9	4.0	66	wnw.	3.6	4,396	582.8	−12.2	0.70	23	0.49	wnw.	29.0	4,305	7,360	Few Cl.St.
						4,500	574.8	−13.2	.....	25	0.49	wnw.	30.8	4,497	7,620	
						4,750	556.1	−15.7	.....	30	0.46	w.	33.5	4,651	8,220	
P. M.																
12:07	962.6	5.9	59	nw.	4.5	4,825	550.3	−16.5	0.82	32	0.46	w.	34.2	4,724	8,400	
						4,750	556.1	−16.0	.....	35	0.52	w.	34.5	4,651	8,220	
						4,500	574.1	−14.4	.....	44	0.77	w.	35.6	4,497	7,560	
12:50	962.2	6.9	55	nnw.	2.7	4,324	587.2	−13.3	0.78	51	0.98	w.	36.4	4,235	7,040	Cloudless.
						4,250	593.1	−12.7	.....	51	1.04	w.	35.5	4,162	6,860	
						4,000	612.8	−10.8	.....	50	1.21	w.	32.3	3,918	5,980	
						3,750	633.0	− 8.8	.....	49	1.42	w.	29.1	3,673	5,180	
1:20	962.1	7.6	53	wnw.	4.0	3,635	642.0	− 7.9	0.27	49	1.53	w.	27.7	3,561	4,800	
						3,500	653.3	− 7.6	.....	48	1.54	w.	26.9	3,429	4,300	
						3,250	674.3	− 6.9	.....	46	1.57	wnw.	25.5	3,184	3,380	
1:43	962.1	7.7	52	wnw.	3.1	3,228	676.4	− 6.8	0.67	46	1.58	wnw.	25.4	3,162	3,310	
						3,000	696.0	− 5.3	.....	46	1.80	wnw.	22.4	2,949	2,640	
						2,750	718.3	− 3.6	.....	45	2.03	wnw.	19.0	2,694	2,190	
						2,500	741.6	− 1.9	.....	45	2.35	wnw.	15.7	2,450	1,760	
						2,250	765.1	− 0.2	.....	44	2.64	wnw.	12.4	2,205	1,330	
2:04	962.1	8.1	52	w.	2.7	2,233	767.1	− 0.1	0.18	44	2.67	wnw.	12.2	2,188	1,300	
						2,000	789.3	0.3	.....	33	2.06	nw.	13.0	1,960	1,090	
2:23	962.2	8.2	53	wnw.	3.6	1,842	805.6	0.6	0.39	26	1.66	nw.	13.6	1,805	950	
						1,750	814.5	1.0	.....	25	1.64	nw.	12.8	1,715	880	
						1,500	840.0	1.9	.....	23	1.61	nw.	10.8	1,470	680	
						1,250	866.2	2.9	.....	21	1.58	nw.	8.8	1,225	490	
2:37	962.3	8.3	54	w.	3.6	1,199	872.4	3.1	0.62	21	1.60	nw.	8.4	1,175	425	
						1,000	894.1	4.3	.....	29	2.41	nw.	7.1	980	60	
						750	922.1	5.9	.....	40	3.72	wnw.	5.5	735	0	
						500	950.1	7.4	.....	51	5.25	w.	3.8	490	0	
2:48	962.3	8.1	55	w.	3.1	396	962.3	8.1	.....	55	5.94	w.	3.1	388	.....	Cloudless.

November 29, 1915.

A. M.																
8:45	975.6	−6.3	71	nnw.	8.9	396	975.6	− 6.3	.....	71	2.55	nnw.	8.9	388	.....	Few Cl.St., nw.
						500	962.8	− 7.1	.....	72	2.41	nnw.	11.1	490	110	
						750	932.3	− 9.1	.....	74	2.08	nw.	16.5	735	360	
8:59	975.7	−6.0	74	nw.	8.5	814	924.6	− 9.6	0.79	74	1.99	nw.	17.9	798	490	
9:00	975.7	−6.0	74	nnw.	8.5	904	913.9	− 8.5	−1.22	74	2.19	nw.	18.5	886	850	
						1,000	902.9	− 8.9	.....	74	2.12	nw.	19.0	980	1,220	
9:07	975.7	−5.8	74	nnw.	6.3	1,221	877.2	−10.0	0.47	74	1.92	nw.	20.1	1,197	2,100	
						1,250	874.3	−10.1	.....	74	1.90	nw.	20.4	1,225	2,200	
						1,500	845.9	−11.1	.....	77	1.81	nnw.	22.6	1,470	3,000	
9:22	975.7	−5.6	75	nnw.	8.5	1,733	820.8	−12.0	0.39	79	1.71	nnw.	24.8	1,699	3,750	
						1,750	818.3	−12.0	.....	79	1.71	nnw.	24.9	1,715	3,830	
						2,000	792.4	−12.8	.....	75	1.52	nnw.	26.0	1,960	4,780	
9:42	975.7	−5.1	76	nnw.	8.9	2,245	767.5	−13.6	0.31	72	1.35	nnw.	27.1	2,200	5,640	
						2,250	766.9	−13.6	.....	72	1.35	nnw.	27.1	2,205	5,650	
9:45	975.7	−5.0	75	nnw.	8.0	2,362	756.0	−12.8	−0.68	69	1.39	nnw.	27.1	2,315	5,960	
						2,500	742.2	−13.4	.....	63	1.20	nnw.	28.5	2,450	6,340	
10:05	975.7	−4.3	71	nw.	7.2	2,561	736.4	−13.7	0.45	60	1.12	nnw.	29.2	2,509	6,500	
						2,750	718.7	−14.5	.....	59	1.02	nnw.	28.0	2,694	7,310	
						3,000	695.2	−15.5	.....	57	0.89	nnw.	26.5	2,939	8,380	
10:33	975.4	−3.9	66	nnw.	7.2	3,075	688.4	−15.8	0.50	57	0.87	nnw.	26.0	3,013	8,700	
						3,000	695.2	−15.3	.....	57	0.91	nnw.	25.5	2,939	7,180	Cloudless.
						2,750	719.1	−13.9	.....	55	1.01	nnw.	23.7	2,694	6,350	
						2,500	743.2	−12.4	.....	53	1.11	nnw.	21.9	2,450	5,480	
11:42	975.3	−1.9	57	nw.	8.0	2,488	744.6	−12.3	0.29	53	1.12	nnw.	21.8	2,438	5,440	Few Cu., nw.
						2,250	768.1	−11.6	.....	57	1.28	nnw.	22.9	2,205	4,700	
11:56	975.3	−1.8	52	nw.	4.5	2,044	788.9	−11.0	0.07	61	1.45	nnw.	23.9	2,003	4,080	
						2,000	793.8	−11.0	.....	61	1.45	nnw.	23.4	1,960	3,960	
NOON	975.3	−1.3	50	nw.	8.0	1,758	819.0	−10.8	0.61	64	1.55	nnw.	20.8	1,723	3,250	
						1,750	820.2	−10.7	.....	64	1.56	nnw.	20.7	1,715	3,230	
						1,500	847.0	− 9.2	.....	71	1.98	nnw.	18.5	1,470	2,620	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

November 29, 1915—Continued.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10⁵ ergs.*	*volts.*	
12:15	975.3	−1.5	60	nnw.	6.3	1,365	861.6	− 8.4	−1.67	76	2.27	nnw.	17.1	1,338	2,290	
12:16	975.2	−1.4	60	nnw.	6.3	1,269	872.0	−10.0	0.79	76	1.98	nnw.	16.9	1,244	2,050	
						1,250	874.3	− 9.8		76	2.01	nnw.	16.9	1,225	1,980	
						1,000	902.9	− 7.9		75	2.34	nw.	13.9	980	1,040	
12:28	975.2	−1.5	62	nw.	6.7	816	924.6	− 6.4	1.14	74	2.63	nw.	12.3	800	330	
						750	932.3	− 5.7		71	2.68	nw.	11.5	735	280	
						500	962.9	− 2.8		57	2.76	nw.	8.7	490	90	
12:34	975.2	−1.6	52	nw.	7.6	396	975.2	− 1.6		52	2.78	nw.	7.6	388		Cloudless.

November 30, 1915.

A. M.																
8:27	969.4	−2.1	67	ssw.	7.6	396	969.4	−2.1		67	3.44	ssw.	7.6	388		10/10 A.St. nw.; few Fr.Cu.
						500	956.8	−2.0		68	3.52	ssw.	11.1	490	0	
8:29	969.4	−2.0	68	ssw.	7.6	551	950.6	−2.0	−0.06	69	3.57	ssw.	12.9	540	0	
8:30	969.4	−2.0	69	ssw.	8.5	751	927.2	0.3	−1.15	64	3.99	ssw.	19.7	736	0	
						1,000	899.0	−0.1		45	2.73	sw.	19.9	980	770	
8:39	969.4	−1.5	66	ssw.	8.5	1,047	893.6	0.1	0.07	42	2.58	sw.	20.0	1,026	950	
8:46	969.3	−1.2	65	ssw.	8.0	1,251	870.9	−1.0	0.54	41	2.30	sw.	20.4	1,226	1,700	Altitude of Fr.Cu. base about 1,250 m.
8:52	969.3	−0.9	63	ssw.	6.7	1,446	850.1	0.4	−0.72	42	2.64	sw.	16.3	1,417	2,480	
						1,500	844.9	0.0		42	2.57	sw.	15.7	1,470	2,670	6/10 A.St.,nw.; 4/10 A.Cu.,wnw.
						1,750	813.2	−1.9		41	2.14	wsw.	13.3	1,715	3,310	
9:32	969.0	0.0	52	ssw.	9.4	1,866	806.2	−2.7	0.74	41	2.00	wsw.	11.6	1,829	3,600	
9:38	969.0	0.0	52	ssw.	9.4	1,983	794.5	−0.8	−1.62	40	2.28	wsw.	12.4	1,944	4,450	
						2,000	792.9	−0.9		42	2.38	wsw.	12.7	1,960	4,480	
						2,250	768.4	−2.4		63	3.15	w.	16.6	2,205	4,800	
10:08	968.9	0.1	58	ssw.	10.3	2,493	745.0	−3.9	0.61	76	3.35	wnw.	18.9	2,443	3,600	Altitude of St.Cu. base about 2,500 m.
						2,500	744.5	−3.9		76	3.35	wnw.	18.9	2,450	3,630	
10:09	968.9	0.1	58	ssw.	9.8	2,617	733.6	−3.4	−0.40	79	3.63	wnw.	18.9	2,564	4,130	5/10 A.St. nw.; 3/10 A.Cu. wnw.; 2/10 St.Cu., wnw.
						2,750	721.1	−4.9		84	3.40	wnw.	19.0	2,694	4,710	
10:49	968.6	1.0	59	ssw.	7.2	2,978	700.0	−7.3	0.86	99	3.26	wnw.	19.3	2,918		
						2,750	721.1	−5.8		100	3.75	wnw.	17.2	2,694	7,320	Altitude of St.Cu. base about 2,750 m.
11:12	968.5	1.1	58	ssw.	6.7	2,585	736.8	−4.8	−0.33	100	4.08	wnw.	15.8	2,533	5,760	
						2,500	744.5	−5.1		100	3.98	wnw.	17.9	2,450	5,450	
11:17	968.5	1.1	59	ssw.	8.0	2,463	748.3	−5.2	0.91	100	3.94	wnw.	18.2	2,414	5,320	
						2,250	768.4	−3.2		84	3.93	wnw.	16.4	2,205	4,510	
						2,000	792.9	−1.0		65	3.65	wnw.	14.3	1,960	3,570	
11:34	968.5	0.9	60	sgw.	6.7	1,904	802.7	−0.1	0.67	58	3.51	wnw.	13.5	1,866	3,200	
						1,750	818.2	0.9		56	3.65	wnw.	14.2	1,715	2,300	
						1,500	843.8	2.6		53	3.91	w.	15.2	1,470	980	
11:50	968.5	0.9	58	sgw.	6.7	1,410	853.6	3.2	−1.65	52	4.00	w.	15.4	1,382	910	
11:56	968.5	1.0	52	sw.	6.7	1,246	870.9	0.5	2.15	49	3.10	wsw.	16.5	1,221	760	
Noon	968.5	1.2	51	sw.	9.8	1,167	879.6	2.2	−1.41	47	3.37	wsw.	13.3	1,144	680	Clouds becoming heavier.
P. M.																
						1,000	898.0	−0.1		42	2.55	sw.	17.2	980	620	
12:03	968.5	1.3	49	sw.	11.2	961	902.3	−0.7	0.00	41	2.36	sw.	18.1	942	610	
12:09	968.4	1.4	48	sw.	11.2	806	920.1	−0.7	0.56	38	2.19	sw.	20.1	790	550	
						750	926.1	−0.4		39	2.30	sw.	18.9	735	515	
						500	955.1	1.0		43	2.83	ssw.	13.4	490	170	
12:15	968.4	1.6	45	ssw.	11.2	396	968.4	1.6		45	3.09	ssw.	11.2	388		10/10 St.Cu., wnw.

December 1, 1915.

A. M.																
8:45	975.7	−4.1	70	nw.	9.4	396	975.7	−4.1		70	3.03	nw.	9.4	388		1/10 A.Cu., nw.; 9/10 St.Cu., nw.
						500	962.7	−5.0		74	2.97	nw.	10.7	490	0	
						750	932.2	−7.1		84	2.81	nw.	13.7	735	0	
8:54	975.9	−4.0	68	nw.	11.2	863	919.3	−8.1	0.86	88	2.70	nw.	15.0	846	0	
						1,000	902.8	−9.2		92	2.57	nnw.	15.4	980	510	Altitude of St.Cu. base about 1,050 m.
8:59	976.0	−4.0	70	nw.	8.0	1,135	887.7	−10.2	0.77	96	2.45	nnw.	15.7	1,113	1,010	
						1,250	874.1	−9.9		98	2.57	nnw.	16.5	1,225	1,460	
9:12	976.4	−3.7	71	nw.	8.9	1,290	870.3	−9.8	−0.26	99	2.61	nnw.	16.8	1,265	1,600	
						1,500	846.8	−10.9		100	2.39	nnw.	15.8	1,470	2,600	
9:17	976.5	−3.8	73	nw.	9.8	1,646	831.0	−11.6	0.51	100	2.25	nnw.	15.0	1,613	3,280	
						1,750	820.1	−11.5		100	2.27	nnw.	15.7	1,715	3,780	Snow 9:25 to 9:45 a. m.
9:40	977.0	−3.2	74	nnw.	8.5	1,936	800.9	−11.3	−0.10	100	2.31	n.	17.1	1,897	5,000	10/10 St.Cu., nnw.
						2,000	795.0	−11.5		100	2.27	n.	16.7	1,960	5,280	
10:05	977.7	−3.4	73	nnw.	8.0	2,167	777.7	−12.1	0.38	100	2.15	n.	15.4	2,124	6,000	
						2,000	795.0	−11.4		100	2.29	n.	14.2	1,960	5,310	
10:20	977.9	−3.1	77	nnw.	8.0	1,850	810.9	−10.8	−0.65	99	2.40	n.	13.2	1,813	4,700	Snow 10:15 to 10:45 a. m.
10:22	977.9	−3.1	77	nnw.	8.0	1,804	816.0	−11.1	0.39	100	2.35	n.	13.2	1,768	4,510	
						1,750	821.8	−10.9		100	2.39	n.		1,715	4,290	
						1,500	849.0	−9.9		100	2.62	n.		1,470	3,260	
10:37	978.1	−2.9	80	nnw.	6.7	1,291	872.1	−9.1	−6.25	100	2.81	n.		1,266	2,410	
10:38	978.1	−2.9	79	nnw.	7.2	1,275	873.8	−10.1	0.60	100	2.57	n.		1,250	2,340	
						1,250	877.0	−10.0		100	2.60	n.		1,225	2,240	
						1,000	906.1	−8.5		100	2.96	nnw.		980	1,210	
10:53	978.2	−2.9	76	nnw.	6.3	990	906.9	−8.4	0.82	100	2.99	nnw.		971	1,170	Altitude of St.Cu. base about 1,000 m.
11:08	978.3	−2.9	77	nnw.	10.3	795	929.9	−6.8	0.95	100	3.44	nnw.		779	0	
						750	935.5	−6.4		98	3.49	nnw.		735	0	Kite wire covered with ice.
						500	965.5	−4.0		84	3.67	nnw.		490	0	
11:18	978.5	−3.0	78	nnw.	8.9	396	978.5	−3.0		78	3.70	nnw.	8.9	388		10/10 St.Cu., nnw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 2, 1915.

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*	
8:41	977.6	−4.4	77	ssw.	7.2	396	977.6	− 4.4	.....	77	3.25	ssw.	7.2	388	.....	2/10 Ci., nnw.
						500	964.8	− 4.8	.....	61	2.49	ssw.	14.0	490	200	
8:42	977.6	−4.4	77	ssw.	7.2	507	963.9	− 4.9	0.45	60	2.43	ssw.	14.4	497	220	
8:45	977.6	−4.3	77	ssw.	8.9	659	945.7	2.2	−1.78	56	4.01	sw.	14.4	646	500	
						750	935.1	1.7	.....	53	3.66	sw.	13.6	735	670	
8:52	977.4	−4.0	72	ssw.	8.9	798	929.4	1.4	0.58	52	3.52	sw.	13.2	782	755	5/10 Ci., nnw.
						1,000	906.2	− 0.1	.....	51	3.09	sw.	12.6	980	1,250	
9:01	977.3	−3.8	74	ssw.	8.9	1,187	885.2	− 1.4	0.72	51	2.77	sw.	12.0	1,164	1,700	
						1,250	878.5	− 1.6	.....	51	2.73	sw.	12.1	1,225	1,880	
						1,500	850.1	− 2.7	.....	51	2.49	wsw.	12.5	1,470	2,570	
						1,750	824.5	− 3.7	.....	51	2.28	wsw.	13.0	1,715	3,260	
9:15	977.2	−3.1	67	ssw.	10.3	1,763	823.3	− 3.8	0.42	51	2.26	wsw.	13.0	1,728	3,290	
						2,000	799.0	− 1.2	.....	35	1.94	w.	14.4	1,960	5,360	
9:38	976.9	−2.1	66	ssw.	8.5	2,124	786.5	0.1	−1.08	27	1.66	w.	15.2	2,082	5,800	
						2,250	774.0	− 0.8	.....	24	1.37	w.	15.7	2,205	6,200	
						2,500	750.0	− 2.4	.....	18	0.90	wnw.	16.7	2,450	7,020	
9:57	976.6	−1.1	63	ssw.	11.2	2,606	740.5	− 3.1	0.66	16	0.75	wnw.	17.1	2,553	7,350	
						2,750	727.0	− 4.2	.....	15	0.64	wnw.	17.4	2,694	7,720	
						3,000	704.2	− 6.0	.....	14	0.52	nw.	17.8	2,939	8,350	
						3,250	681.6	− 7.8	.....	13	0.41	nw.	18.3	3,184	8,980	
10:18	976.3	0.3	59	ssw.	10.3	3,258	681.0	− 7.8	0.72	13	0.41	nw.	18.3	3,192	9,000	2/10 Ci., nnw.; 2/10 Cl. St., nnw.
						3,500	659.7	− 9.5	.....	17	0.46	nw.	20.0	3,429	9,700	
						3,750	638.9	−11.1	.....	22	0.52	nw.	21.8	3,673	10,420	Ci., moving rapidly.
10:54	975.4	1.7	53	ssw.	8.9	3,952	622.3	−12.5	0.68	25	0.52	nw.	23.2	3,871	11,000	7/10 Ci., nnw.; 2/10 Cl. St., nnw.
						4,000	618.8	−12.7	.....	25	0.51	nw.	23.1	3,918	11,360	
						4,250	599.2	−13.7	.....	28	0.52	nw.	22.8	4,162	13,160	
						4,500	580.0	−14.7	.....	30	0.51	nw.	22.4	4,407	14,960	
						4,750	561.1	−15.7	.....	32	0.50	nw.	22.0	4,651	16,720	
11:43	974.1	4.4	41	ssw.	9.8	4,862	552.6	−16.1	0.40	33	0.49	nw.	21.8	4,761	.....	
						4,750	561.1	−15.7	.....	33	0.51	nw.	21.2	4,651	.....	
						4,500	580.0	−14.7	.....	35	0.60	nw.	20.0	4,407	.....	
						4,250	599.2	−13.7	.....	36	0.67	nw.	18.8	4,162	.....	
P. M.																
12:29	972.6	6.0	36	ssw.	11.2	4,153	607.2	−13.3	0.86	36	0.69	nw.	18.4	4,067	8,660	
						4,000	618.8	−12.0	.....	37	0.80	nw.	18.3	3,918	8,250	
						3,750	638.9	− 9.8	.....	40	1.06	nw.	18.1	3,673	7,570	
						3,500	659.7	− 7.7	.....	42	1.34	nw.	18.0	3,429	6,900	
1:02	971.6	6.3	37	ssw.	12.5	3,352	673.3	− 6.4	0.78	43	1.53	nw.	17.8	3,284	6,500	
						3,250	681.6	− 5.6	.....	42	1.60	nw.	17.7	3,184	6,200	
						3,000	704.2	− 3.7	.....	40	1.79	wnw.	17.5	2,939	5,420	
						2,750	727.0	− 1.7	.....	38	2.01	wnw.	17.3	2,694	4,840	
						2,500	750.0	0.2	.....	36	2.23	w.	17.2	2,450	4,400	
1:30	970.7	7.0	37	ssw.	14.3	2,404	758.4	1.0	0.39	35	2.30	w.	17.1	2,356	4,210	
						2,250	773.1	1.6	.....	31	2.13	w.	15.7	2,205	3,920	
1:48	970.2	7.6	35	ssw.	11.6	2,125	784.8	2.1	−0.58	27	1.92	w.	14.7	2,082	3,720	
1:49	970.2	7.7	35	ssw.	11.6	2,005	796.5	1.4	0.69	27	1.83	w.	14.7	1,965	3,500	
						2,000	797.0	1.4	.....	27	1.83	w.	14.7	1,960	3,490	
						1,750	821.9	3.2	.....	26	2.00	w.	15.4	1,715	3,010	
						1,500	847.2	4.9	.....	25	2.16	wsw.	16.1	1,470	2,280	
2:02	969.9	7.8	36	ssw.	13.9	1,338	864.4	6.0	0.05	24	2.24	wsw.	16.7	1,312	1,800	
						1,250	873.9	6.1	.....	20	1.88	wsw.	17.2	1,225	1,600	
2:10	969.8	8.5	29	sw.	12.5	1,142	885.2	6.1	−1.14	16	1.51	sw.	18.3	1,120	1,360	
						1,000	901.0	4.5	.....	17	1.43	sw.	17.7	980	1,010	
2:12	969.8	8.7	28	sw.	14.3	870	915.2	3.0	0.21	17	1.29	sw.	17.1	853	700	
2:18	969.7	8.4	31	sw.	13.4	775	925.8	3.2	1.32	26	2.00	sw.	15.9	760	500	
						750	929.0	3.6	.....	26	2.06	sw.	15.8	735	470	
						500	957.2	7.4	.....	30	3.09	wsw.	14.1	490	120	
2:24	969.7	8.2	32	ssw.	13.4	396	969.7	8.2	.....	32	3.48	ssw.	13.4	388	.....	6/10 Ci., nw.; 3/10 Ci.St., nw.

December 3, 1915.

A. M.																
8:58	970.2	−2.3	75	nnw.	1.8	396	970.2	− 2.3	.....	75	3.78	nnw.	1.8	388	.....	Cloudless.
9:00	970.2	−2.1	74	nnw.	1.8	493	958.3	− 2.2	−0.10	81	4.12	n.	2.8	483	0	
						500	957.9	− 1.9	.....	81	4.23	n.	3.0	490	0	
9:15	970.2	−1.1	71	nnw.	2.2	648	940.3	2.8	−3.23	70	5.23	nne.	5.9	635	0	
						750	928.8	4.1	.....	49	4.01	nne.	5.8	735	130	
10:28	970.2	1.9	57	ne.	2.7	838	918.6	5.2	−1.26	31	2.74	nne.	5.7	822	300	
10:44	970.2	3.1	55	nne.	2.7	887	913.3	4.4	1.63	31	2.59	nne.	6.5	870	352	
10:47	970.2	3.3	54	nne.	2.7	908	904.4	6.4	−2.10	30	2.88	nne.	5.7	949	.....	
10:49	970.2	3.4	53	nne.	2.7	840	918.6	4.2	−0.14	30	2.48	nne.	5.1	824	.....	
						750	928.8	4.1	.....	31	2.54	ne.	5.8	735	210	
10:58	970.2	3.8	49	nne.	2.7	698	934.7	4.0	−0.97	31	2.52	ne.	6.3	684	180	
11:01	970.2	3.7	50	ne.	3.1	512	956.5	2.2	1.29	33	2.36	ne.	6.3	502	70	
						500	957.9	2.4	.....	35	2.54	ne.	5.8	490	60	
11:04	970.2	3.7	51	ne.	2.7	396	970.2	3.7	.....	51	4.06	ne.	2.7	388	.....	Cloudless.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 4, 1915 (No. 1).

Surface.						At different heights above sea.											Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10⁵ ergs.*	*volts.*	
8:23	968.0	−3.1	91	sse.	5.8	396	968.0	−3.1	.....	91	4.29	sse.	5.8	388	.....	1/10 Ci., nw.
8:26	968.0	−3.1	91	sse.	5.8	496	955.7	−3.1	0.00	91	4.29	sse.	.....	486	280	
						500	955.6	−2.8	.....	91	4.40	sse.	.....	490	280	
8:28	968.0	−3.0	90	se.	6.3	667	935.7	3.8	−4.04	82	6.58	sse.	.....	654	300	
						750	926.8	4.2	.....	71	5.86	sse.	.....	735	970	
8:45	968.1	−2.3	87	se.	5.4	936	905.3	5.1	−0.48	47	4.13	sse.	.....	918	1,150	
						1,000	898.1	4.9	.....	45	3.90	sse.	.....	980	1,200	
8:51	968.3	−2.0	85	se.	5.8	1,148	882.2	4.4	0.33	40	3.35	se.	.....	1,125	1,740	
9:34	968.3	0.0	76	se.	6.3	1,164	880.5	6.6	−13.75	32	3.12	sse.	.....	1,141	1,920	Few Ci., nw.
						1,250	870.9	6.3	.....	31	2.96	sse.	.....	1,225	2,190	
						1,500	844.2	5.3	.....	30	2.67	s.	.....	1,470	.....	
9:58	968.3	1.0	72	sse.	6.7	1,714	823.7	4.4	0.38	28	2.34	s.	.....	1,680	.....	
						1,500	844.2	5.2	.....	28	2.48	s.	.....	1,470	1,710	
						1,250	870.9	6.1	.....	28	2.64	sse.	.....	1,225	1,550	
10:11	968.1	1.5	72	sse.	6.3	1,215	875.3	6.2	−0.38	28	2.65	sse.	.....	1,191	1,530	
						1,000	898.1	5.4	.....	28	2.51	sse.	.....	980	1,290	
10:16	968.1	2.1	68	sse.	6.7	843	916.0	4.8	0.26	28	2.41	sse.	.....	827	1,100	
10:18	968.1	2.2	67	sse.	6.7	765	924.9	5.0	−1.77	28	2.44	sse.	.....	750	1,000	
						750	926.8	4.7	.....	29	2.48	sse.	.....	735	970	
10:22	968.1	2.0	68	se.	6.7	499	955.7	0.3	1.46	36	2.25	se.	.....	489	290	
10:25	968.1	1.8	72	se.	5.8	396	968.1	1.8	.....	72	5.01	se.	5.8	388	.....	

December 4, 1915 (No. 2).

A. M.																
10:32	968.0	2.2	68	se.	5.8	396	968.0	2.2	.....	68	4.87	se.	5.8	388	.....	
10:33	968.0	2.4	66	se.	5.8	466	959.4	0.5	2.43	64	4.05	se.	.....	486	170	
						500	955.7	1.0	.....	64	4.20	se.	.....	490	250	
						750	927.0	4.7	.....	63	5.38	sse.	.....	735	850	
10:36	968.0	2.8	60	se.	6.7	780	923.2	5.1	−1.46	63	5.54	sse.	.....	765	900	
						1,000	899.0	5.3	.....	49	4.37	sse.	.....	980	1,430	
10:48	968.0	2.7	62	sse.	5.4	1,197	877.0	5.4	−0.07	36	3.23	sse.	.....	1,173	1,900	
						1,250	871.6	5.5	.....	35	3.16	sse.	.....	1,225	2,090	
11:05	967.9	3.1	60	sse.	5.8	1,395	856.3	5.8	−0.20	32	2.95	s.	.....	1,367	2,500	Cloudless.
						1,500	845.1	5.5	.....	31	2.80	s.	.....	1,470	2,730	
						1,750	819.6	4.9	.....	30	2.60	ssw.	.....	1,715	3,210	
						2,000	794.4	4.2	.....	28	2.31	sw.	.....	1,960	3,710	
P. M.																
12:05	967.4	5.2	59	sse.	5.8	2,016	793.3	4.2	0.26	28	2.31	sw.	.....	1,976	3,730	
						2,250	770.1	2.6	.....	28	2.06	sw.	.....	2,205	3,820	
						2,500	746.9	1.0	.....	28	1.84	wsw.	.....	2,450	3,960	
12:42	966.7	6.5	53	sse.	5.4	2,713	727.3	−0.5	0.67	28	1.64	w.	.....	2,658	4,150	
						2,750	724.0	−0.7	.....	29	1.67	w.	.....	2,694	4,200	
						3,000	701.2	−2.3	.....	32	1.61	w.	.....	2,939	4,470	
						3,250	679.3	−4.0	.....	35	1.53	w.	.....	3,184	.....	
1:02	966.5	7.0	52	se.	7.2	3,309	674.6	−4.3	0.62	36	1.53	w.	12.0	3,242	.....	
						3,250	679.3	−4.0	.....	37	1.62	w.	11.7	3,184	.....	
						3,000	701.2	−2.4	.....	39	1.95	wsw.	10.4	2,939	.....	
1:15	966.2	7.3	51	se.	7.6	2,832	716.1	−1.4	0.68	40	2.18	wsw.	9.6	2,775	.....	
						2,750	724.0	−0.9	.....	39	2.21	wsw.	8.7	2,694	.....	
						2,500	746.9	0.8	.....	36	2.33	wsw.	6.2	2,450	.....	
						2,250	770.1	2.5	.....	33	2.41	wsw.	3.7	2,205	.....	
						2,000	793.6	3.9	.....	32	2.59	wsw.	2.7	1,960	2,370	
						1,750	818.1	5.1	.....	31	2.72	sw.	2.1	1,715	2,050	
1:41	965.8	8.8	45	se.	8.0	1,717	821.9	5.3	−0.59	31	2.76	sw.	2.0	1,683	2,000	
1:44	965.8	8.8	45	se.	7.6	1,666	827.0	5.0	0.16	31	2.70	sw.	1.0	1,633	1,940	
						1,500	843.5	5.3	.....	31	2.76	ssw.	2.6	1,470	1,740	
1:52	965.7	8.4	48	se.	8.0	1,298	864.9	5.6	−0.84	31	2.82	s.	6.1	1,272	1,500	
						1,250	870.0	5.2	.....	31	2.74	s.	6.2	1,225	1,400	
1:55	965.7	8.5	46	se.	8.5	1,167	878.7	4.5	0.31	32	2.69	sse.	6.3	1,144	1,210	
						1,000	897.0	5.0	.....	32	2.79	sse.	6.9	980	840	
1:57	965.6	8.6	45	se.	8.5	876	910.6	5.4	−1.77	32	2.87	sse.	7.3	859	560	
2:00	965.6	8.7	46	se.	8.0	797	919.6	4.0	1.02	37	3.01	sse.	5.9	781	380	
						750	925.0	4.5	.....	38	3.20	sse.	6.0	735	340	
						500	953.8	7.0	.....	44	4.41	se.	6.9	490	100	
2:06	965.6	8.1	47	se.	7.2	396	965.6	8.1	.....	47	5.08	se.	7.2	388	.....	Cloudless.

December 5, 1915.

A. M.																
9:36	971.9	−0.5	89	ese.	5.8	396	971.9	−0.5	.....	89	5.22	ese.	5.8	388	.....	7/10 Cl.St., nw.; Light fog.
9:39	971.9	−0.5	87	se.	5.8	485	961.0	−1.7	1.35	84	4.45	sse.	6.3	475	380	
						500	959.0	−1.3	.....	83	4.55	sse.	6.4	490	420	Heavy frost.
9:46	971.9	−0.5	86	se.	5.4	685	937.4	3.7	−2.70	76	6.05	sse.	7.3	672	1,200	
						750	930.0	4.3	.....	73	6.07	sse.	7.1	735	1,390	
						1,000	902.5	6.3	.....	62	5.92	se.	6.6	980	1,770	
10:39	972.0	1.3	82	ese.	5.8	1,021	900.0	6.5	−0.83	60	5.81	se.	6.5	1,001	1,790	
						1,250	874.2	5.2	.....	53	4.69	sse.	6.8	1,225	2,020	
						1,500	849.3	3.9	.....	45	3.64	s.	7.2	1,470	2,480	
11:49	972.0	3.3	71	sse.	4.5	1,513	847.7	3.8	0.55	45	3.61	s.	7.2	1,483	2,500	8/10 Ci., wnw.
11:54	972.0	3.4	70	sse.	4.9	1,677	830.7	4.8	−0.61	44	3.78	s.	5.8	1,644	.....	No fog.
						1,750	823.5	4.6	.....	44	3.73	s.	5.8	1,715	.....	
11:56	972.0	3.6	70	sse.	4.9	1,998	798.7	3.8	0.31	42	3.37	ssw.	5.8	1,958	.....	

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 5, 1915—Continued.

Surface.						At different heights above sea.											Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.			
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric		
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*		
12:02	972.0	4.1	68	sse.	4.5	2,099	788.8	5.2	−1.07	34	3.01	sw.	5.8	2,057	.....		
						2,000	798.8	4.4	.....	34	2.85	ssw.	6.0	1,960	2,760		
12:04	972.0	4.1	68	sse.	3.6	1,926	805.4	3.9	0.71	34	2.75	ssw.	6.2	1,888	2,500		
						1,750	823.5	5.1	.....	34	2.99	ssw.	6.2	1,715	1,900		
12:08	972.0	3.9	69	sse.	3.6	1,673	830.7	5.7	−1.26	34	3.11	ssw.	6.2	1,640	1,630		
						1,500	849.3	3.5	.....	38	2.98	s.	8.0	1,470	1,370		
12:20	972.0	3.7	69	sse.	4.0	1,459	852.9	3.0	0.52	39	2.96	s.	8.5	1,430	1,360		
						1,250	874.2	4.0	.....	41	3.33	sse.	7.6	1,225	1,320		
						1,000	902.5	5.4	.....	43	3.86	se.	6.5	980	1,460		
12:38	972.0	4.1	68	se.	3.1	878	916.0	6.0	−1.34	45	4.21	se.	6.0	861	1,170		
						750	930.0	4.3	.....	48	3.99	se.	5.7	735	860		
12:41	972.0	4.3	68	se.	3.1	580	950.1	2.0	1.47	52	3.67	se.	5.4	509	450		
						500	959.0	3.1	.....	59	4.50	se.	4.4	490	260		
12:46	972.0	4.7	67	se.	3.1	396	972.0	4.7	.....	67	5.72	se.	3.1	388	.....		1/10 Ci., wnw.; 2/10 Ci.Cu., wnw.; 4/10 A.Cu.,wnw.

December 6, 1915.

P. M.																	
12:54	975.3	4.8	75	s.	5.4	396	975.3	4.8	.....	75	6.45	s.	5.4	388	.....		10/10 St., ssw.
						500	963.3	4.1	.....	80	6.55	s.	6.2	490	180		
						750	933.9	2.3	.....	93	6.71	s.	8.1	735	590		Altitude of St. base about 800 m.
1:03	975.3	4.8	75	s.	5.8	777	930.6	2.2	0.68	94	6.73	s.	8.3	762	630		
1:10	975.2	4.9	75	s.	5.8	869	920.0	7.1	−5.33	100	10.09	s.	11.8	852	990		
						1,000	905.1	7.1	.....	98	9.89	ssw.	11.3	980	1,620		
1:17	975.2	5.1	74	sse.	6.3	1,029	902.2	7.1	0.00	98	9.89	ssw.	11.2	1,009	1,760		
1:24	975.0	5.1	74	sse.	5.8	1,188	884.8	6.5	0.38	82	7.94	ssw.	13.7	1,165	2,530		Altitude of St. base about 750 m.
						1,250	877.5	5.9	.....	84	7.80	ssw.	14.0	1,225	2,720		
						1,500	850.1	3.9	.....	93	7.51	sw.	15.3	1,470	3,370		
1:41	974.9	5.3	73	sse.	5.8	1,711	829.8	2.1	0.84	100	7.11	sw.	16.4	1,677	3,840		
						1,750	825.5	3.3	.....	83	6.42	sw.	15.5	1,715	3,900		
1:55	974.6	5.6	71	sse.	5.8	1,894	811.3	8.2	−3.33	21	2.28	sw.	12.2	1,856	4,120		
						2,000	800.9	7.8	.....	20	2.12	sw.	11.4	1,960	4,520		
2:30	974.6	5.2	74	sse.	5.8	2,187	783.0	7.2	0.34	17	1.73	sw.	10.0	2,143	5,350		10/10 St., s.
						2,250	777.0	6.8	.....	23	2.27	sw.	10.7	2,205	5,640		Altitude of St. base about 750 m.
						2,500	753.5	5.1	.....	41	3.60	sw.	13.8	2,450	.....		
2:39	974.6	5.2	74	sse.	5.8	2,575	747.0	4.6	0.60	47	3.99	sw.	14.7	2,523	.....		
						2,500	753.5	5.0	.....	52	4.53	sw.	14.7	2,450	.....		
2:49	974.6	5.4	74	sse.	5.8	2,346	768.1	5.8	0.55	63	5.81	sw.	14.7	2,299	.....		
						2,250	777.0	6.3	.....	53	5.06	sw.	14.0	2,205	.....		
						2,000	800.9	7.7	.....	28	2.94	ssw.	12.3	1,960	4,810		
3:04	974.6	5.2	74	sse.	4.9	1,963	804.6	7.9	−1.48	24	2.56	ssw.	12.1	1,924	4,760		10/10 St., sse.
						1,750	825.5	4.6	.....	70	5.94	ssw.	12.4	1,715	4,450		Altitude of St. base about 750 m.
3:14	974.6	5.3	74	sse.	5.8	1,679	833.2	3.7	0.81	85	6.77	ssw.	12.5	1,646	4,220		
						1,500	850.1	5.2	.....	83	7.35	ssw.	12.8	1,470	3,660		
						1,250	877.5	7.2	.....	81	8.23	ssw.	13.3	1,225	2,780		
3:30	974.6	5.3	74	sse.	6.3	1,137	889.9	8.1	−1.79	80	8.64	ssw.	13.4	1,115	2,150		
						1,000	905.0	5.6	.....	91	8.28	s.	13.4	980	1,400		
3:32	974.6	5.2	75	sse.	4.5	992	905.8	5.5	0.56	92	8.31	s.	13.4	973	1,350		
3:35	974.6	5.2	75	sse.	4.5	849	921.8	6.3	−1.93	100	9.55	s.	14.5	832	600		
						750	933.0	4.4	.....	100	8.37	sse.	15.3	735	50		
3:45	974.6	5.2	75	sse.	5.8	662	943.3	2.7	0.90	100	7.42	sse.	16.1	649	0		Altitude of St. base about 700 m.
						500	962.0	4.1	.....	84	6.88	sse.	9.2	490	0		
3:51	974.6	5.1	77	sse.	4.9	396	974.6	5.1	.....	77	6.77	sse.	4.9	388	.....		10/10 St., sse.

December 7, 1915.

A. M.																	
8:41	976.3	1.8	88	wnw.	5.4	396	976.3	1.8	.....	88	6.12	wnw.	5.4	388	.....		3/10 Ci., wnw.; 7/10 A.St., wnw.
						500	963.7	4.0	.....	76	6.18	nw.	9.0	490	0		
8:45	976.3	1.9	87	wnw.	4.9	676	943.3	7.5	−2.04	55	5.70	nnw.	15.0	663	0		
						750	934.2	7.1	.....	54	5.45	nnw.	14.9	735	0		
						1,000	905.8	5.7	.....	49	4.49	nnw.	14.6	980	0		
8:59	976.4	2.6	84	wnw.	4.9	1,154	889.9	4.9	0.54	46	3.98	nnw.	14.4	1,131	0		
9:03	976.4	2.5	84	wnw.	4.5	1,235	881.3	5.5	−0.74	34	3.07	nw.	13.6	1,211	0		
						1,250	878.2	5.4	.....	34	3.05	nw.	13.7	1,225	30		
						1,500	852.0	4.2	.....	29	2.39	wnw.	15.4	1,470	450		
9:16	976.5	2.5	85	wnw.	3.6	1,661	836.6	3.5	0.47	26	2.04	wnw.	16.5	1,628	720		
						1,750	826.8	3.8	.....	26	2.09	wnw.	16.5	1,715	870		
9:24	976.5	2.6	84	wnw.	3.6	1,776	824.8	3.9	−0.35	26	2.10	wnw.	16.5	1,741	920		
						2,000	802.1	2.4	.....	25	1.82	wnw.	16.8	1,960	1,180		
						2,250	777.9	0.9	.....	23	1.50	wnw.	18.4	2,205	1,550		1/10 Ci., w.; 7/10 Ci.St., w.; 2/10 A.St., wnw.
9:47	976.6	3.3	82	wnw.	6.3	2,353	768.1	0.2	0.64	22	1.36	wnw.	18.7	2,306	1,720		
						2,500	753.8	−0.9	.....	33	1.87	wnw.	19.6	2,450	1,960		
						2,750	730.6	−2.7	.....	53	2.59	wnw.	20.2	2,694	2,350		
						3,000	708.0	−4.6	.....	73	3.03	wnw.	20.7	2,939	2,750		
10:12	976.6	4.0	79	wnw.	6.3	3,067	701.9	−5.1	0.74	77	3.06	wnw.	20.9	3,005	2,850		Partial solar halo, 22° radius.
10:21	976.6	4.3	78	wnw.	5.4	3,177	692.3	−5.0	−0.09	79	3.17	w.	22.8	3,112	3,050		
						3,250	686.2	−5.4	.....	80	3.10	w.	22.8	3,184	3,190		
						3,500	664.9	−6.8	.....	83	2.86	w.	22.6	3,429	3,620		
10:40	976.6	5.1	75	wnw.	7.6	3,726	645.4	−8.0	0.55	86	2.67	w.	22.4	3,650	4,000		
						3,750	643.5	−8.0	.....	81	2.51	w.	23.2	3,673	4,150		
10:58	976.6	5.8	69	wnw.	6.3	3,851	634.8	−8.2	0.12	62	1.88	w.	26.0	3,772	4,600		10/10 Ci.St., w.
						3,750	643.5	−8.1	.....	70	2.15	w.	27.0	3,673	4,450		
11:18	976.6	6.4	65	wnw.	5.8	3,588	656.3	−8.0	0.70	82	2.54	wnw.	28.5	3,515	4,160		
						3,500	664.3	−7.4	.....	79	2.58	wnw.	28.7	3,429	4,000		
						3,250	685.5	−5.7	.....	72	2.72	wnw.	29.2	3,184	3,540		
11:30	976.5	6.7	62	wnw.	5.4	3,042	703.5	−4.2	−2.65	66	2.84	wnw.	29.7	2,980	3,160		5/10 Ci., w.; 4/10 Ci.St., w.
11:38	976.5	7.4	61	wnw.	5.8	3,008	706.7	−5.1	0.64	75	2.98	wnw.	29.4	2,947	3,100		
						3,000	707.1	−5.0	.....	.....	.....	wnw.	.....	2,939	3,090		
						2,750	730.6	−3.5	.....	.....	.....	wnw.	.....	2,694	2,750		
						2,500	753.8	−1.9	.....	.....	.....	wnw.	.....	2,450	2,420		
						2,250	778.0	−0.3	.....	.....	.....	wnw.	.....	2,205	2,090		
NOON	976.4	8.5	53	wnw.	5.8	2,191	783.0	0.1	0.74	.....	.....	wnw.	.....	2,147	2,000		

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 7, 1915—Continued.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^6 *ergs.*	*volts.*	
						2,000	802.0	1.5				wnw.		1,960	1,680	
12:07	976.3	8.7	52	wnw.	4.9	1,988	802.9	1.6	0.10			wnw.		1,948	1,660	
12:17	976.1	9.0	53	nw.	4.5	1,789	823.0	1.8	0.51			wnw.		1,753	1,300	
						1,750	827.1	2.0				wnw.		1,715	1,280	
						1,500	853.0	3.3				nw.		1,470	1,140	
12:30	976.1	9.4	52	nw.	4.5	1,264	877.8	4.5	−0.34			nw.		1,239	1,000	
						1,250	879.8	4.4				nw.		1,225	970	
12:32	976.0	9.4	52	nw.	4.5	1,086	897.0	3.9	0.67			nw.		1,065	620	
						1,000	907.0	4.4				nw.		980	420	
12:35	976.0	9.4	51	nw.	4.0	834	925.3	5.6	−0.37			nw.	23.4	818	80	
						750	935.1	5.3				nw.	21.8	735	0	
12:38	976.0	9.6	50	nw.	4.0	725	937.8	5.2	1.46			nw.	21.2	711	0	
						500	964.0	8.5				nw.	10.6	490	0	
12:47	975.9	10.0	45	nw.	5.8	396	975.9	10.0		45	5.53	nw.	5.8	388		5/10 Cl., w.; 5/10 Cl.St., w.

December 8, 1915.

A. M.																
8:47	973.8	2.6	64	nw.	1.8	396	973.8	2.6		64	4.72	nw.	1.8	388		Few Cl., wnw.; 1/10 A.Cu., wnw.
						500	961.1	2.6		62	4.57	nw.	5.9	490	0	
8:50	973.8	2.7	65	nw.	2.7	683	939.9	2.6	0.00	59	4.35	nnw.	13.3	670	0	
						750	932.1	3.5		57	4.47	nnw.	12.0	735	0	
8:53	973.9	2.8	64	nw.	2.7	794	927.3	4.0	−1.26	56	4.55	nnw.	11.2	779	0	
						1,000	904.0	2.9		55	4.14	nnw.	11.8	980	270	
9:07	973.9	3.8	62	wnw.	1.8	1,224	879.6	1.8	0.51	54	3.76	nnw.	12.5	1,200	565	
						1,250	876.3	1.6		53	3.64	nnw.	12.8	1,225	610	
						1,500	849.5	0.2		44	2.73	nnw.	15.3	1,470	1,020	
						1,750	824.0	−1.2		34	1.88	nw.	17.9	1,715	1,430	
9:38	974.2	4.3	57	nw.	4.9	1,760	822.9	−1.2	0.56	34	1.88	nw.	18.0	1,725	1,450	
						2,000	798.5	−2.1		29	1.49	nw.	18.7	1,960	1,840	
						2,250	773.7	−3.1		23	1.08	wnw.	19.5	2,205	2,250	
9:54	974.3	4.8	51	nnw.	5.8	2,498	749.9	−4.0	0.38	18	0.79	wnw.	20.2	2,448	2,650	Few A.St., wnw.
						2,750	726.1	−5.7		23	0.87	wnw.	20.8	2,694	2,950	
						3,000	703.2	−7.3		28	0.92	wnw.	21.5	2,939	3,320	
10:32	974.3	5.7	48	nnw.	4.5	3,058	698.3	−7.7	0.66	29	0.92	wnw.	21.6	2,996	3,400	
						3,000	703.2	−7.3		29	0.95	wnw.	21.3	2,939	3,280	
						2,750	726.1	−5.7		27	1.02	wnw.	19.8	2,694	2,730	
10:57	974.3	6.3	46	nw.	4.0	2,692	731.9	−5.3	0.40	27	1.06	wnw.	19.7	2,638	2,600	
						2,500	749.7	−4.6		21	0.87	wnw.	20.1	2,450	2,280	
11:25	974.1	7.3	44	nw.	4.0	2,295	769.6	−3.7	0.53	14	0.63	wnw.	20.4	2,249	1,920	
						2,250	773.7	−3.5		14	0.64	wnw.	20.1	2,205	1,840	
						2,000	798.5	−2.2		15	0.76	nw.	18.5	1,960	1,390	
11:50	973.7	7.3	40	wnw.	4.5	1,842	814.5	−1.3	0.46	15	0.82	nw.	17.5	1,805	1,100	Few Cl.St., wnw.
						1,750	824.0	−0.9		17	0.96	nw.	16.9	1,715	1,010	
						1,500	849.5	0.2		21	1.30	nnw.	15.2	1,470	750	
P. M.																
12:04	973.6	7.6	42	nw.	4.5	1,319	869.2	1.1	0.74	23	1.52	nnw.	14.0	1,293	565	
						1,250	876.3	1.6		25	1.72	nnw.	13.1	1,225	500	
						1,000	904.0	3.4		29	2.26	nnw.	9.9	980	270	
						750	931.9	5.3		33	2.94	wnw.	6.7	735	40	
						500	960.2	7.1		37	3.73	wnw.	3.5	490	0	
12:18	973.4	7.9	40	wnw.	2.2	396	973.4	7.9		40	4.26	wnw.	2.2	388		Few Cl.St., wnw.

December 9, 1915.

A. M.																
8:41	968.6	− 2.6	82	se.	8.5	396	968.6	− 2.6		82	4.03	se.	8.6	388		6/10 Cl., wnw.; 4/10 Cl. St., wnw.
						500	956.1	− 1.4		76	4.13	se.	10.0	490	80	
						750	927.0	1.4		61	4.12	sse.	13.6	735	220	
8:50	968.6	− 2.4	81	se.	8.9	793	921.8	1.9	−1.13	59	4.14	sse.	14.2	778	260	
						1,000	898.1	2.8		53	3.96	s.	12.1	980	710	
9:02	968.5	− 2.1	82	se.	9.4	1,090	888.3	3.1	−0.40	51	3.89	s.	11.2	1,069	900	
						1,250	870.8	2.4		51	3.70	s.	11.5	1,225	1,330	
9:15	968.5	− 1.9	79	se.	9.8	1,444	850.2	1.6	0.42	50	3.43	s.	11.8	1,416	1,860	
						1,500	844.3	2.1		50	3.56	s.	12.2	1,470	2,000	
9:20	968.5	− 1.8	79	se.	7.6	1,692	824.6	3.8	−0.89	51	4.09	ssw.	13.7	1,658	2,500	
						1,750	818.9	3.6		51	4.03	ssw.	13.7	1,715	2,720	
						2,000	794.8	2.6		51	3.76	ssw.	13.9	1,960	3,500	
						2,250	771.0	1.6		51	3.50	sw.	14.1	2,205	4,560	
10:02	968.5	− 0.9	78	se.	7.6	2,338	761.4	1.3	0.39	51	3.42	sw.	14.2	2,291	4,940	
						2,500	747.5	2.9		49	3.69	sw.	15.1	2,450	5,600	
10:06	968.5	− 0.8	76	se.	6.7	2,585	738.6	3.8	−1.01	48	3.85	sw.	15.6	2,533	5,900	
						2,750	724.4	2.9		44	3.31	sw.	15.8	2,694	6,630	
						3,000	702.1	1.5		37	2.52	wsw.	16.0	2,939	8,050	
						3,250	680.2	0.1		31	1.91	wsw.	16.3	3,184	8,780	
11:00	967.9	0.5	70	se.	8.9	3,272	677.9	0.0	0.55	30	1.83	wsw.	16.3	3,205	8,850	
						3,500	659.1	− 1.6		30	1.60	wsw.	19.3	3,429	9,520	
						3,750	638.8	− 3.4		31	1.43	w.	22.6	3,673	10,570	
11:20	967.4	0.9	69	se.	7.2	3,758	637.6	− 3.4	0.70	31	1.43	w.	22.7	3,681	10,630	
						4,000	618.5	− 5.3		31	1.21	w.	22.8	3,918	12,260	
						4,250	598.9	− 7.2		32	1.06	w.	22.9	4,162	13,940	
11:37	967.0	1.3	69	se.	6.7	4,394	587.9	− 8.3	0.77	32	0.97	w.	23.0	4,303	14,910	
						4,500	580.0	− 8.9		30	0.86	w.	24.0	4,407	15,630	
						4,750	561.8	−10.2		26	0.66	w.	26.5	4,651	17,310	
						5,000	543.9	−11.5		22	0.50	w.	29.0	4,896		

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 9, 1915—Continued.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^8 ergs.*	*volts.*	
12:08	966.3	1.9	68	sse.	7.2	5,037	541.3	−11.7	0.63	21	0.47	w.	29.9	4,932	.....	6/10 Cl., w.; 2/10 Cl.St., w.
						5,000	543.9	−11.4	.....	21	0.48	w.	29.4	4,896	.....	
						4,750	561.8	− 9.6	.....	19	0.51	w.	28.1	4,651	17,410	
						4,500	580.0	− 7.8	.....	18	0.57	w.	26.7	4,407	16,350	
						4,250	598.9	− 6.0	.....	16	0.59	w.	25.4	4,162	15,280	
12:51	965.4	2.8	60	se.	8.0	4,067	613.3	− 4.6	0.69	15	0.62	w.	24.4	3,983	14,500	
						4,000	618.2	− 4.2	.....	16	0.69	w.	24.0	3,918	14,200	
						3,750	638.0	− 2.4	.....	19	0.95	w.	22.4	3,673	13,060	
						3,500	658.0	− 0.7	.....	21	1.21	wsw.	20.8	3,429	11,920	
1:30	964.6	3.5	52	se.	10.3	3,266	677.9	0.9	0.45	24	1.56	wsw.	19.3	3,199	10,160	
						3,250	679.0	0.9	.....	24	1.56	wsw.	19.2	3,184	10,000	
						3,000	700.3	2.0	.....	23	1.62	wsw.	18.4	2,939	6,980	
						2,750	722.3	3.2	.....	21	1.61	wsw.	17.5	2,694	6,310	
						2,500	744.6	4.3	.....	20	1.66	wsw.	16.7	2,450	5,780	
1:58	964.1	3.5	51	ese.	9.8	2,368	756.6	4.9	0.15	19	1.65	wsw.	16.2	2,320	5,500	
						2,250	767.4	5.1	.....	21	1.85	wsw.	17.7	2,205	5,210	
2:05	964.0	3.5	51	ese.	9.8	2,036	787.9	5.4	−0.51	26	2.33	sw.	20.6	1,995	4,670	
						2,000	791.1	5.2	.....	27	2.39	sw.	19.2	1,960	4,590	
2:07	964.0	3.5	51	ese.	9.8	1,880	802.9	4.6	0.04	32	2.71	sw.	18.0	1,843	4,280	
						1,750	815.9	4.6	.....	42	3.56	sw.	17.2	1,715	3,750	
						1,500	840.0	4.7	.....	62	5.29	ssw.	15.7	1,470	2,860	
2:25	963.7	3.6	57	ese.	9.8	1,330	858.7	4.8	−0.37	75	6.45	s.	14.7	1,304	2,600	
						1,250	867.0	4.5	.....	71	5.98	s.	15.5	1,225	2,400	
						1,000	894.1	3.6	.....	55	4.35	sse.	18.1	980	1,760	
2:32	963.6	3.5	57	ese.	8.9	865	909.3	3.1	−0.86	47	3.59	se.	19.5	848	1,400	
						750	922.6	2.1	.....	50	3.56	se.	19.0	735	1,080	
2:37	963.6	3.4	58	se.	8.9	599	939.7	0.8	1.28	55	3.56	se.	18.4	587	620	
						500	951.5	2.0	.....	56	3.95	se.	14.4	490	330	
2:40	963.6	3.4	57	ese.	10.3	396	963.6	3.4	.....	57	4.45	ese.	10.3	388	.....	8/10 Cl., w.; 2/10 Cl.St., w.

December 10, 1915.

A. M.																
10:29	963.0	0.2	78	e.	8.9	396	963.0	0.2	.....	78	4.84	e.	8.9	388	.....	10/10 St., e.
						500	950.8	− 0.9	.....	82	4.65	e.	9.8	490	0	Mist during entire flight.
10:35	963.2	0.2	78	e.	8.9	734	923.2	− 3.3	1.04	92	4.27	e.	11.8	720	0	
						750	921.4	− 3.4	.....	92	4.23	e.	.....	735	150	
10:42	963.3	0.2	79	e.	8.5	937	899.9	− 4.2	0.44	93	4.00	e.	.....	919	1,230	Altitude of St. base 800 to 850 m.
						1,000	893.1	− 3.0	.....	93	4.42	e.	.....	980	1,600	
10:48	963.3	0.2	80	e.	8.5	1,173	873.4	0.5	−1.99	92	5.82	e.	.....	1,150	2,600	
						1,250	866.0	1.0	.....	92	6.04	.....	.....	1,225	3,560	
						1,500	839.1	2.7	.....	94	6.97	.....	.....	1,470	6,520	Electric potential very variable.
11:23	963.3	0.2	80	e.	8.0	1,518	837.0	2.8	−0.60	94	7.02	.....	23.6	1,488	6,700	
						1,500	839.1	2.7	.....	94	6.97	.....	.....	1,470	7,320	
11:51	963.2	−0.2	88	e.	8.0	1,269	863.0	1.5	−1.54	94	6.40	.....	.....	1,244	5,830	Altitude of St. base about 700 m.
						1,250	866.0	1.2	.....	94	6.26	.....	.....	1,225	5,640	
						1,000	893.1	− 2.7	.....	95	4.64	.....	.....	980	3,130	Kites heavily weighted with ice.
						750	921.4	− 3.4	.....	95	4.37	.....	.....	735	1,140	
P. M.																
12:05	963.2	−0.4	92	e.	7.6	887	905.3	−4.4	0.71	95	4.01	.....	.....	870	2,000	
12:15	963.2	−0.5	94	e.	7.6	579	941.2	− 2.2	0.82	95	4.84	ene.	.....	568	0	Altitude of St. base about 600 m.
						500	950.8	− 1.6	.....	95	5.08	ene.	.....	490	0	
12:25	963.2	−0.7	94	ene.	8.0	396	963.2	− 0.7	.....	94	5.41	ene.	8.0	388	.....	10/10 St., ene.

December 11, 1915 (No. 1).

A. M.																
8:44	969.3	−3.0	96	n.	4.0	396	969.3	−3.0	.....	96	4.56	n.	4.0	388	.....	10/10 St., nne.
						500	957.2	−3.9	.....	97	4.28	n.	.....	490	140	
						750	927.4	−5.9	.....	99	3.67	nne.	.....	735	470	Altitude of St. base 600 to 650 m.
8:51	969.3	−3.0	98	n.	4.9	773	924.0	−6.1	0.82	99	3.61	nne.	.....	758	500	
						1,000	898.0	−6.4	.....	99	3.52	nne.	.....	980	1,680	
						1,250	870.0	−6.6	.....	100	3.50	ne.	.....	1,225	2,970	
						1,500	842.2	−6.9	.....	100	3.41	ne.	.....	1,470	4,500	
9:09	969.3	−3.0	96	nne.	4.5	1,645	826.3	−7.0	0.10	100	3.38	ne.	.....	1,612	4,690	
						1,750	815.6	−4.7	.....	94	3.87	ne.	.....	1,715	4,400	
9:43	969.4	−2.8	96	nne.	4.0	1,826	807.7	−3.0	−1.90	90	4.28	ne.	.....	1,790	4,400	
						1,750	815.6	−4.2	.....	92	3.96	ne.	.....	1,715	4,140	
9:52	969.6	−2.7	96	n.	3.6	1,554	836.5	−7.3	0.18	96	3.16	nne.	15.5	1,523	3,510	
						1,500	841.6	−7.2	.....	96	3.19	nne.	.....	1,470	3,340	
						1,250	869.0	−6.8	.....	97	3.34	nne.	.....	1,225	2,530	
						1,000	897.3	−6.3	.....	98	3.52	nne.	.....	980	1,730	Considerable ice on wire.
10:10	969.6	−2.7	94	nne.	4.0	883	911.4	−6.1	0.74	98	3.58	nne.	.....	866	1,350	
						750	926.9	−5.1	.....	97	3.86	nne.	.....	735	990	Altitude of St. base 600 to 650 m.
						500	956.3	−3.3	.....	95	4.41	nne.	.....	490	300	
10:24	969.6	−2.5	94	nne.	4.0	396	969.6	−2.5	.....	94	4.66	nne.	4.0	388	.....	10/10 St., nne.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 11, 1915 (No. 2).

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*	
10:44	969.6	−2.5	94	nne.	4.0	396	969.6	−2.5	.....	94	4.66	nne.	4.0	388	.....	10/10 St., n.
						500	956.3	−3.4	.....	94	4.32	nne.	.....	490	270	
10:55	969.6	−2.4	94	nne.	4.5	688	934.3	−4.9	0.82	94	3.81	n.	.....	675	1,000	Altitude of St. base 600 to 700 m.
						750	926.0	−5.0	.....	94	3.77	n.	.....	735	1,080	
						1,000	896.8	−5.6	.....	95	3.62	n.	.....	980	1,460	
						1,250	868.8	−6.1	.....	96	3.50	nne.	.....	1,225	1,850	
						1,500	841.9	−6.6	.....	97	3.40	nne.	.....	1,470	2,460	
11:12	969.4	−2.3	93	n.	4.0	1,619	829.6	−6.8	0.20	97	3.34	nne.	.....	1,587	2,760	
						1,750	815.8	−5.3	.....	92	3.60	nne.	.....	1,715	3,070	
11:21	969.3	−2.1	92	n.	4.0	1,911	799.2	−3.3	−1.20	87	4.04	nne.	.....	1,873	3,470	
						2,000	790.2	−3.0	.....	83	3.94	nne.	.....	1,960	.....	
P. M.																
12:07	968.8	−1.8	92	nne.	4.0	2,161	774.3	−2.3	−0.16	76	3.83	ne.	5.3	2,118	.....	
						2,000	790.2	−2.2	.....	77	3.92	ne.	6.0	1,960	2,130	
						1,750	815.8	−2.0	.....	79	4.08	nne.	7.2	1,715	1,830	
12:21	968.6	−1.7	92	n.	4.0	1,566	834.6	−1.9	−4.23	81	4.23	nne.	8.1	1,535	1,600	
						1,500	841.9	−4.6	.....	87	3.61	nne.	10.4	1,470	1,530	
12:26	968.6	−1.8	92	n.	3.1	1,455	846.5	−6.6	0.03	91	3.18	nne.	11.9	1,426	1,470	
						1,250	868.1	−6.5	.....	92	3.25	nne.	11.5	1,225	1,230	Considerable ice on wire.
12:36	968.5	−1.8	92	n.	2.7	1,124	882.9	−6.5	0.43	92	3.25	nne.	11.3	1,102	1,060	
						1,000	896.0	−6.0	.....	92	3.39	nne.	10.3	980	620	
						750	925.2	−4.9	.....	92	3.73	n.	8.3	735	0	Altitude of St. base 600 to 700 m.
12:43	968.4	−1.8	92	n.	2.7	678	934.3	−4.6	0.99	92	3.82	n.	7.7	665	0	
						500	955.3	−2.8	.....	92	4.45	n.	4.8	490	0	
12:50	968.4	−1.8	92	n.	3.1	396	968.4	−1.8	.....	92	4.84	n.	3.1	388	.....	3/10 St. Cu., n.; 7/10 St., n.

December 12, 1915.

A. M.																
10:03	967.9	−1.4	90	nw.	4.9	396	967.9	−1.4	.....	90	4.90	nw.	4.9	388	.....	10/10 St., wnw.
						500	955.1	−2.1	.....	91	4.67	nw.	7.4	490	0	
						750	925.5	−3.9	.....	94	4.15	wnw.	13.7	735	0	Altitude of St. base 700 to 800 m.
10:10	968.0	−1.3	90	nw.	5.4	819	917.7	−4.4	0.71	95	4.01	wnw.	15.4	803	0	
						1,000	896.5	−5.2	.....	97	3.82	wnw.	20.8	980	940	
10:15	968.0	−1.1	90	nw.	5.4	1,142	880.6	−5.8	0.43	99	3.71	wnw.	24.2	1,120	1,690	
10:16	968.0	−1.1	90	nw.	6.7	1,251	868.5	−3.5	−2.11	97	4.42	wnw.	23.0	1,226	2,250	
10:57	968.3	−0.8	84	nw.	7.2	1,460	846.1	−4.6	0.42	82	3.40	.....	18.0	1,431	2,900	
11:04	968.3	−0.7	85	nw.	6.3	1,270	866.7	−4.0	−2.00	87	3.80	.....	.....	1,245	2,010	
						1,250	868.2	−4.4	.....	88	3.71	.....	.....	1,225	1,920	
11:06	968.3	−0.7	85	nw.	6.7	1,160	878.9	−6.3	0.68	98	3.52	.....	.....	1,137	1,500	Wire heavily coated with ice.
						1,000	896.7	−5.2	.....	98	3.86	.....	.....	980	760	
11:23	968.4	−0.6	86	nw.	7.6	808	919.4	−3.9	0.80	99	4.37	nw.	.....	792	0	Altitude of St. base 700 to 800 m.
						750	926.2	−3.4	.....	99	4.55	nw.	.....	735	0	
						500	956.1	−1.5	.....	88	4.74	nw.	.....	490	0	
11:42	968.4	−0.6	84	nw.	7.6	396	968.4	−0.6	.....	84	4.88	nw.	7.6	388	.....	10/10 St., nw.

December 13, 1915.

A. M.																
8:45	977.6	−7.6	100	nw.	2.7	396	977.6	− 7.6	.....	100	3.21	nw.	2.7	388	.....	Few Cl.St., nw.
8:50	977.6	−7.4	100	nw.	2.2	474	967.9	− 7.4	−0.26	95	3.10	nnw.	4.6	465	0	
						500	964.2	− 7.2	.....	95	3.15	nnw.	5.6	490	0	
						750	934.3	− 5.6	.....	91	3.47	nnw.	12.0	735	0	
						1,000	905.1	− 3.9	.....	87	3.84	nw.	18.4	980	420	
9:08	977.8	−6.8	98	nnw.	2.7	1,110	892.6	− 3.2	−0.66	85	3.98	nw.	21.2	1,088	660	
						1,250	876.9	− 3.7	.....	82	3.67	nw.	20.8	1,225	970	
						1,500	849.5	− 4.6	.....	77	3.20	wnw.	20.0	1,470	1,460	
9:22	977.9	−6.3	95	nnw.	2.7	1,665	832.4	− 5.2	0.36	74	2.92	wnw.	19.5	1,632	1,750	
						1,750	823.2	− 5.8	.....	74	2.78	wnw.	19.1	1,715	1,920	
						2,000	797.5	− 7.6	.....	72	2.31	wnw.	17.8	1,960	2,410	
9:34	978.1	−5.9	92	nnw.	3.6	2,136	783.9	− 8.6	0.72	72	2.12	wnw.	17.1	2,093	2,670	
						2,250	772.1	− 8.6	.....	66	1.94	wnw.	19.4	2,205	2,900	
9:51	978.2	−5.7	91	nnw.	2.2	2,452	752.5	− 8.6	0.00	52	1.53	wnw.	23.6	2,403	3,300	
						2,500	747.8	− 8.8	.....	51	1.47	wnw.	23.8	2,450	3,410	
						2,750	724.5	− 9.9	.....	46	1.21	wnw.	25.2	2,694	3,910	
						3,000	701.5	−10.9	.....	41	0.98	wnw.	26.6	2,939	4,420	
10:10	978.3	−5.3	90	nnw.	2.7	3,093	693.0	−11.3	0.42	39	0.90	wnw.	27.1	3,030	4,600	Cloudless.
						3,000	701.5	−10.9	.....	38	0.91	wnw.	26.6	2,939	4,170	
						2,750	725.0	− 9.9	.....	36	0.94	wnw.	25.4	2,694	3,000	
						2,500	748.9	− 8.8	.....	34	0.98	wnw.	24.1	2,450	2,470	
10:47	978.6	−4.3	86	nw.	3.1	2,356	762.4	− 8.3	0.07	33	1.00	wnw.	23.7	2,309	2,230	
						2,250	773.2	− 8.2	.....	37	1.12	wnw.	21.6	2,205	2,070	
10:59	978.7	−3.9	82	nw.	2.7	2,207	777.2	− 8.2	0.55	39	1.19	wnw.	21.1	2,163	2,000	
						2,000	798.1	− 7.1	.....	45	1.51	wnw.	19.7	1,960	1,520	
						1,750	823.9	− 5.7	.....	52	1.97	wnw.	17.9	1,715	940	
11:18	978.6	−3.7	80	nnw.	2.7	1,623	837.4	− 5.0	0.45	55	2.21	wnw.	17.1	1,591	650	
						1,500	850.2	− 4.4	.....	59	2.49	wnw.	16.0	1,470	540	
11:26	978.6	−4.0	77	nnw.	3.6	1,289	873.6	− 3.5	0.07	66	3.01	nw.	14.2	1,264	330	
						1,250	878.0	− 3.5	.....	69	3.15	nw.	14.0	1,225	300	
11:33	978.5	−3.8	75	nnw.	3.6	1,147	889.2	− 3.4	−0.77	78	3.59	nw.	13.3	1,124	220	
						1,000	906.2	− 4.5	.....	78	3.27	nw.	11.5	980	120	
						750	935.7	− 6.5	.....	78	2.75	nnw.	8.4	735	0	
11:42	978.5	−3.6	77	nnw.	2.2	691	942.5	− 6.9	1.29	78	2.66	nnw.	7.7	678	0	
						500	965.6	− 4.5	.....	77	3.23	nw.	3.8	490	0	
11:49	978.5	−3.1	76	nw.	1.8	396	978.5	− 3.1	.....	76	3.58	nw.	1.8	388	.....	Cloudless.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 14, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^3 *ergs.*	*volts.*	
9:10	973.6	−8.2	88	se.	7.6	396	973.6	− 8.2	.....	88	2.68	se.	7.6	388	.....	10/10 St., ssw.
						500	960.7	− 8.9	.....	85	2.43	se.	13.9	490	500	
9:15	973.6	−8.1	87	se.	8.0	551	954.1	− 9.2	0.65	84	2.34	se.	16.5	540	720	
						750	930.9	− 4.8	.....	78	3.18	ese.	15.7	735	1,640	
9.29	973.4	−7.8	85	ese.	8.5	806	923.4	− 3.6	−2.20	76	3.44	ese.	15.5	790	1,900	
						1,000	901.5	− 2.3	.....	76	3.83	se.	15.2	980	2,520	
9:34	973.4	−7.8	85	ese.	8.0	1,100	889.8	− 1.6	−0.68	75	4.01	sse	15.0	1,078	2,840	
						1,250	873.0	− 2.1	.....	75	3.85	sse.	14.3	1,225	3,330	
9:40	973.3	−7.6	85	ese.	8.0	1,273	870.7	− 2.2	0.35	75	3.82	sse.	14.2	1,248	3,400	
						1,500	845.9	− 1.7	.....	76	4.03	s.	15.7	1,470	3,950	
9:46	973.3	−7.5	86	ese.	7.6	1,528	843.2	− 1.6	−0.24	76	4.07	ssw.	15.9	1,498	4,020	
						1,750	819.8	− 2.8	.....	80	3.87	ssw.	12.8	1,715	4.530	
10:10	973.2	−7.4	83	ese.	7.6	1,965	797.8	− 4.0	0.55	83	3.63	ssw.	9.8	1,926	5,000	Lower clouds dissipating.
						2,000	794.0	− 3.8	.....	83	3.69	ssw.	8.7	1,960	5,530	
11:18	972.0	−6.6	77	ese.	8.0	2,127	781.0	− 3.3	−0.43	84	3.90	ssw.	4.8	2,084	5,940	
						2,250	769.0	− 3.8	.....	85	3.77	ssw.	6.4	2,205	6,350	
						2,500	744.1	− 4.8	.....	86	3.51	sw.	9.5	2,450	7,170	
						2,750	720.6	− 5.8	.....	87	3.26	sw.	12.7	2.694	7,980	
						3,000	697.8	− 6.7	.....	89	3.09	wsw.	15.9	2,939	8,800	
11:33	971.4	−6.2	74	ese.	7.6	3,216	679.3	− 7.6	0.39	90	2.89	wsw.	18.1	3,151	9,500	4/10 A.Cu., w.; 6/10 A.St., wsw.
						3,250	675.9	− 7.8	.....	91	2.87	wsw.	18.0	3,184	.....	
P. M.																
12:30	969.3	−5.1	76	ese.	10.3	3,434	659.2	− 8.7	0.50	100	2.91	wsw.	17.3	3.364	.....	Altitude of A.St. base about 3,400 m.
						3,500	654.1	− 8.9	.....	100	2.86	wsw.	17.6	3,429	.....	
						3,750	633.2	− 9.7	.....	100	2.67	wsw.	19.1	3,673	.....	
						4,000	613.1	−10.6	.....	100	2.46	w.	20.6	3,918	.....	
						4,250	593.8	−11.4	.....	100	2.29	w.	22.0	4,162	.....	
12:49	968.8	−4.7	74	ese.	10.3	4,401	581.9	−11.9	0.50	100	2.19	w.	22.9	4,310	.....	6/10 Ci., w.; 3/10 Ci.St., w.
						4,250	593.8	−10.9	.....	100	2.39	w.	21.7	4,162	.....	
1:20	968.3	−3.7	67	ese.	8.9	4,046	610.1	− 9.5	0.31	99	2.68	wsw.	20.4	3,963	.....	
						4,000	613.1	− 9.4	.....	98	2.69	wsw.	20.1	3,918	.....	
						3,750	633.2	− 8.6	.....	93	2.73	wsw.	18.9	3,673	.....	
						3,500	654.1	− 7.8	.....	87	2.74	sw.	17.6	3,429	.....	
1:42	968.0	−3.7	67	ese.	9.4	3,315	670.0	− 7.2	0.49	83	2.76	sw.	16.7	3,247	9,950	
						3,250	675.0	− 6.9	.....	82	2.80	sw.	16.1	3,184	9,750	
						3,000	697.8	− 5.7	.....	80	3.02	ssw.	14.1	2,939	8.970	
						2,750	720.6	− 4.5	.....	77	3.23	ssw.	12.1	2,694	8,410	
1:59	967.9	−3.6	68	ese.	8.9	2.497	743.5	− 3.2	−0.47	75	3.51	s.	10.0	2,447	8,030	
2:03	967.9	−3.5	69	ese.	9.4	2,412	751.5	− 3.6	1.14	76	3.44	s.	14.8	2,364	7,900	
2:07	967.9	−3.4	69	ese.	8.9	2.342	758.1	− 2.8	0.00	76	3.68	s.	16.3	2,295	7,670	
						2,250	767.0	− 2.8	.....	76	3.68	s.	16.2	2,205	7,350	
						2,000	791.5	− 2.8	.....	78	3.78	sse.	15.7	1,960	6,500	
2:13	967.9	−3.3	68	ese.	7.2	1,970	794.5	− 2.8	0.61	78	3.78	sse.	15.7	1,931	6,400	Clouds changing to Ci.Cu. and A.Cu.
						1,750	816.9	− 1.4	.....	77	4.19	sse.	16.3	1,715	5,650	
						1.500	842.5	0.1	.....	77	4.74	sse.	16.9	1,470	4,880	
2:28	967.7	−3.7	70	ese	8.5	1,332	860.4	1.1	0.12	76	5.03	sse.	17.3	1,306	4,360	
						1,250	869.0	1.2	.....	75	5.00	sse.	17.6	1,225	4,070	
2:37	967.7	−4.1	75	ese.	8.0	997	896.9	1.5	−2.17	70	4.77	se.	18.4	977	2.880	
2:41	967.6	−4.2	77	ese.	7.2	840	914.5	− 1.9	−1.54	80	4.18	ese.	15.3	824	2.160	
						750	925.2	− 3.3	.....	81	3.76	ese.	13.5	735	1,850	
2:46	967.6	−4.1	75	ese.	6.7	567	916.7	− 6.1	1.17	84	3.07	ese.	10.1	556	1,400	
						500	955.0	− 5.3	.....	80	3.13	ese.	8.9	490	1,250	
2:48	967.6	−4.1	74	ese.	7.2	396	967.6	− 4.1	.....	74	3.20	ese.	7.2	388	.....	3/10 Ci.Cu., w.; 7/10 A.Cu., w.

December 15, 1915.

A. M.																
10:10	962.5	−3.2	100	ese.	6.3	396	962.5	−3.2	.....	100	4.68	ese.	6.3	388	.....	10/10 St., ese.
						500	950.0	−3.9	.....	100	4.41	ese.	8.0	490	1,120	Light snow.
10:17	962.5	−3.2	100	ese.	6.3	705	925.6	−5.3	0.68	100	3.91	ese.	11.5	691	2,680	Altitude of St. base 450 to 500 m.
						750	920.1	−4.8	.....	100	4.08	.....	11.8	735	2,920	
						1,000	891.2	−1.8	.....	100	5.26	.....	13.8	980	4,290	
10:26	962.5	−3.2	100	ese.	6.3	1,157	874.1	0.1	−1.19	100	6.15	.....	15.4	1,134	4,900	
						1,250	863.5	0.6	.....	100	6.38	.....	18.8	1,225	5,400	
10:49	962.5	−3.2	100	ese.	5.8	1,417	846.3	1.5	−0.54	100	6.81	.....	24.9	1,389	6,920	Snow turned into fine mist.
						1,500	837.1	1.5	.....	100	6.81	.....	22.7	1,470	7,120	
11:03	962.5	−3.0	100	ese.	6.3	1,615	825.8	1.5	0.17	100	6.81	.....	19.5	1,583	7,400	Electric potential very variable.
						1,500	837.1	1.9	.....	100	7.01	.....	19.9	1,470	6,620	
11:18	962.2	−3.0	100	ese.	5.8	1,466	841.2	2.0	−0.23	100	7.06	.....	20.0	1,437	6,400	
						1,250	863.5	1.5	.....	100	6.81	.....	17.7	1,225	4,850	
11:38	962.1	−2.9	100	ese.	7.2	1,203	868.9	1.4	−1.91	100	6.76	.....	17.2	1,179	4,480	Kite wire heavily coated with ice.
						1,000	891.2	−2.5	.....	100	4.96	.....	14.3	980	2,660	
11:54	962.1	−3.0	100	ese.	5.4	841	909.4	−5.5	0.56	100	3.84	.....	12.5	825	1,080	
						750	920.1	−5.0	.....	100	4.01	.....	11.3	735	200	Altitude of St. base 450 to 500 m.
						500	950.0	−3.6	.....	100	4.52	ese.	8.0	490	0	
P. M.																
12:06	962.1	−3.0	100	e.	6.7	396	962.1	−3.0	.....	100	4.75	e.	6.7	388	.....	10/10 St., ese.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 16, 1915 (No. 1).

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m. p. s.*	*10^5 ergs.*	*volts.*	
10:19	962.1	−3.6	100	nne.	3.1	396	962.1	−3.6	.....	100	4.52	nne.	3.1	388	.....	10/10 Nb., nne.
						500	949.6	−4.4	.....	100	4.22	nne.	4.3	490	2,060	Heavy snow.
						750	920.0	−6.3	.....	98	3.52	nne.	7.3	735	7,000	Altitude of Nb. base about 500 m.
10:28	962.1	−3.6	100	n.	4.0	822	911.3	−6.9	0.77	98	3.34	nne.	8.2	806	8,520	
						1,000	891.0	−7.8	.....	97	3.06	.....	7.9	980	11,950	Electric potential very high during heaviest snowfall from 10:19 to 10:55 a. m.
10:48	962.1	−3.8	100	n.	3.6	1,237	863.9	−8.9	0.48	96	2.75	.....	7.4	1,213	16,640	
						1,250	862.5	−8.8	.....	96	2.77	.....	7.2	1,225	16,700	
11:36	961.9	−4.1	98	n.	4.9	1,458	839.6	−6.3	−1.38	96	3.45	.....	4.2	1,429	.....	
11:46	961.8	−4.0	98	n.	4.9	1,280	858.6	−9.1	0.27	96	2.70	ne.	7.8	1,255	7,700	Spark about 65 mm. in length.
						1,250	862.5	−9.0	.....	97	2.75	ne.	7.9	1,225	7,300	
						1,000	891.0	−8.4	.....	97	2.90	nne.	8.9	980	3,970	
11:52	961.8	−4.0	100	n.	4.0	834	909.6	−7.9	0.87	97	3.03	n.	9.6	818	1,752	Altitude of Nb. base about 800 m.
						750	920.0	−7.2	.....	97	3.22	n.	8.9	735	446	
						500	949.0	−5.0	.....	98	3.93	n.	7.1	490	180	Light snow.
P. M.																
12:01	961.8	−4.1	98	n.	6.3	396	961.8	−4.1	.....	98	4.24	n.	6.3	388	.....	10/10 Nb., n.

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P. M.																
1:38	961.0	−5.4	100	nnw.	5.4	396	961.0	−5.4	.....	100	3.88	nnw.	5.4	388	.....	10/10 St., nnw.
						500	948.4	−6.0	.....	100	3.68	nnw.	6.6	490	.....	Moderately heavy snow.
						750	918.5	−7.6	.....	99	3.18	nnw.	9.2	735	.....	Electric potential very high until 1:47 p. m.
1:47	960.9	−5.4	100	nnw.	6.7	822	909.8	−8.1	0.63	99	3.04	nnw.	10.0	806	.....	
						1,000	889.2	−8.6	.....	99	2.91	nnw.	9.3	980	.....	Altitude of St. base 1,100 to 1,200 m.
2:01	960.8	−5.5	100	nnw.	5.8	1,190	867.6	−9.1	0.27	98	2.75	n.	8.5	1,167	2,200	
						1,250	860.8	−8.7	.....	98	2.85	nnw.	7.8	1,225	.....	Light snow.
						1,500	833.3	−7.0	.....	97	3.28	nnw.	5.0	1,470	.....	2/10 A.Cu., sw.; 8/10 St., nnw.
3:20	960.9	−6.3	99	nw.	5.8	1,619	821.2	−6.2	−0.68	96	3.48	nw.	3.7	1,587	.....	Snow ended 2:45 p. m.
						1,750	807.4	−5.8	.....	97	3.64	wnw.	4.6	1,715	.....	
3:30	960.9	−6.5	98	nw.	6.3	1,994	782.7	−5.2	−0.48	100	3.94	w.	6.2	1,954	.....	8/10 A.Cu., sw.; 1/10 St., nnw.
						1,750	807.4	−6.9	.....	100	3.41	nw.	7.5	1,715	1,520	
4:00	961.0	−7.1	100	nw.	5.4	1,552	828.0	−8.3	−0.30	100	3.02	nnw.	8.2	1,521	1,270	
						1,500	833.3	−8.5	.....	100	2.96	nnw.	8.1	1,470	1,200	
						1,250	860.8	−9.2	.....	100	2.79	nnw.	7.9	1,225	860	
4:12	961.2	−7.2	100	nw.	5.8	1,190	867.6	−9.4	0.38	100	2.74	nnw.	7.8	1,167	700	
						1,000	889.2	−8.7	.....	100	2.91	nnw.	8.9	980	610	
4:22	961.2	−7.3	97	nw.	5.8	793	913.3	−7.9	−0.86	100	3.12	nnw.	10.0	778	500	
						750	918.5	−8.3	.....	100	3.02	nnw.	10.2	735	450	
4:24	961.2	−7.3	97	nw.	5.8	641	931.3	−9.2	0.78	100	2.79	nnw.	10.6	628	310	
						500	948.4	−8.1	.....	98	3.01	nw.	8.1	490	140	
4:28	961.2	−7.3	97	nw.	5.8	396	961.2	−7.3	.....	97	3.19	nw.	5.8	388	.....	9/10 A.St., sw.

December 17, 1915.

A. M.																
9:03	963.4	−14.8	100	nw.	3.1	396	963.4	−14.8	.....	100	1.68	nw.	3.1	388	.....	Cloudless.
						500	950.2	−14.8	.....	84	1.41	nnw.	4.5	490	230	
9:04	963.4	−14.4	100	nw.	3.1	540	945.3	−14.8	0.00	78	1.31	nnw.	5.0	529	310	
						750	919.8	−11.5	.....	60	1.36	n.	7.7	735	750	
9:12	963.6	−12.9	100	nw.	4.0	781	916.4	−11.0	−1.58	56	1.33	n.	8.3	766	810	
						1,000	889.2	− 9.5	.....	50	1.36	nnw.	8.5	980	1,480	
						1,250	862.5	− 7.7	.....	43	1.37	nnw.	8.8	1,225	2,240	
9:56	963.9	−14.5	100	nw.	6.3	1,443	841.3	− 6.4	0.69	37	1.32	nw.	9.0	1,415	2,920	
						1,500	835.1	− 6.5	.....	37	1.31	nw.	9.1	1,470	3,110	
						1,750	808.5	− 7.2	.....	37	1.23	nw.	9.4	1,715	4,500	
						2,000	783.0	− 7.9	.....	37	1.15	wnw.	9.6	1,960	5,300	
10:20	964.0	−13.9	100	wnw.	4.0	2,162	767.3	− 8.3	0.26	37	1.12	wnw.	9.8	2,119	5,600	
						2,250	758.6	− 8.6	.....	36	1.06	wnw.	9.8	2,205	5,820	
						2,500	735.0	− 9.4	.....	32	0.88	wnw.	9.7	2,450	6,440	
						2,750	711.8	−10.1	.....	29	0.75	wnw.	9.6	2,694	7,260	
						3,000	689.0	−10.9	.....	26	0.62	w.	9.6	2,939	7,690	
						3,250	666.7	−11.7	.....	22	0.49	w.	9.5	3,184	7,910	
11:14	964.0	−12.7	100	wnw.	2.7	3,258	665.9	−11.7	0.31	22	0.49	w.	9.5	3,192	7,890	
						3,500	645.3	−10.6	.....	17	0.42	wnw.	10.8	3,429	7,520	
P. M.																
12:05	963.3	−11.8	96	wnw.	3.1	3,698	628.6	− 9.7	−0.45	13	0.35	wnw.	11.3	3,622	7,580	
						3,750	624.0	−10.0	.....	.....	.....	wnw.	11.5	3,673	7,590	Few Ci. on western horizon.
						4,000	603.6	−11.5	.....	.....	.....	wnw.	13.0	3,918	8,000	
						4,250	584.4	−12.9	.....	.....	.....	wnw.	14.4	4,162	8,350	
12:45	962.7	−11.1	94	wnw.	2.7	4,463	568.8	−14.1	0.64	.....	.....	wnw.	15.4	4,371	.....	
						4,250	584.4	−12.7	.....	.....	.....	wnw.	14.5	4,162	8,270	
						4,000	603.6	−10.9	.....	.....	.....	wnw.	13.2	3,918	7,880	
1:35	962.6	−10.3	87	nw.	4.9	3,890	613.3	−10.1	0.55	.....	.....	wnw.	12.6	3,810	7,700	Few Ci.St., nnw.
						3,750	624.0	− 9.3	.....	.....	.....	wnw.	.....	3,673	7,360	
						3,500	645.3	− 8.0	.....	.....	.....	wnw.	.....	3,429	6,740	
1:52	962.7	−10.2	93	nw.	3.6	3,436	650.4	− 7.6	−0.80	.....	.....	wnw.	.....	3,366	6,580	
						3,250	666.3	− 9.1	.....	.....	.....	w.	.....	3,184	6,120	
1:58	962.7	−10.0	92	nw.	3.6	3,161	673.9	− 9.8	−0.02	.....	.....	w.	.....	3,097	5,900	
						3,000	688.1	− 9.8	.....	.....	.....	w.	.....	2,939	5,320	
						2,750	711.0	− 9.9	.....	.....	.....	wnw.	.....	2,694	4,430	
2:14	962.7	− 9.6	96	nw.	2.7	2,579	726.4	− 9.9	0.02	.....	.....	wnw.	.....	2,527	3,800	
						2,500	734.1	− 9.9	.....	.....	.....	wnw.	.....	2,450	3,650	
						2,250	758.0	− 9.8	.....	.....	.....	wnw.	.....	2,205	3,150	
2:26	962.6	− 9.6	96	nw.	2.2	2,038	779.0	− 9.8	0.54	.....	.....	wnw.	.....	1,997	2,730	
						1,750	808.0	− 8.2	.....	.....	.....	wnw.	.....	1,715	2,180	
						1,500	834.5	− 6.9	.....	.....	.....	wnw.	.....	1,470	1,730	
2:38	962.6	− 9.2	96	nw.	1.8	1,441	841.3	− 6.6	0.00	.....	.....	wnw.	.....	1,413	1,620	4/10 Ci.St., nw.
2:44	962.6	− 9.7	100	nw.	1.8	1,379	848.1	− 6.6	−0.61	.....	.....	nw.	.....	1,352	1,500	
						1,250	862.5	− 7.3	.....	.....	.....	nw.	.....	1,225	1,170	
2:47	962.5	− 9.6	100	nw.	1.8	1,032	886.3	− 8.7	−0.14	.....	.....	nw.	.....	1,012	600	
						750	919.8	− 9.1	.....	.....	.....	nw.	.....	735	0	
						500	949.3	− 9.5	.....	.....	.....	nw.	.....	490	0	
2:59	962.5	− 9.6	97	nw.	1.8	396	962.5	− 9.6	.....	97	2.61	nw.	1.8	388	.....	4/10 Ci.St., nw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 18, 1915.

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
10:56	963.4	− 5.9	98	sw.	4.5	396	963.4	− 5.9	.....	98	3.64	sw.	4.5	388	.....	10/10 St.Cu., wnw.
10:57	963.4	− 5.8	97	sw.	4.5	468	954.5	− 6.0	0.14	87	3.20	wsw.	10.2	459	180	Light snow at intervals throughout flight.
						500	950.9	− 5.9	.....	87	3.23	wsw.	10.4	490	250	
						750	921.1	− 5.0	.....	91	3.65	wnw.	11.7	735	820	
11:01	963.4	− 5.3	92	sw.	4.5	772	918.3	− 4.9	−0.36	91	3.69	wnw.	11.8	757	900	
						1,000	892.1	− 6.3	.....	93	3.34	wnw.	.....	980	1,500	
11:30	963.3	− 4.1	90	sw.	4.0	1,142	875.9	− 7.1	0.59	95	3.18	wnw.	.....	1,120	1,890	Altitude of St.Cu. base 1,100 to 1,200 m.
						1,250	864.0	− 7.9	.....	95	2.96	wnw.	.....	1,225	2,190	
						1,500	836.2	− 9.8	.....	94	2.48	wnw.	.....	1,470	2,880	
						1,750	809.5	−11.7	.....	94	2.10	wnw.	.....	1,715	3,680	
11:53	963.2	−3.3	89	w.	4.0	1,820	802.1	−12.2	0.75	94	2.00	wnw.	.....	1,784	4,000	
						2,000	783.4	−12.2	.....	94	2.00	wnw.	.....	1,960	4,840	
P. M.																
12:02	963.2	−3.0	86	w.	4.9	2,113	772.1	−12.2	0.00	94	2.00	wnw.	.....	2,071	5,340	
						2,250	758.2	−12.7	.....	94	1.92	.....	.....	2,205	5,510	
12:15	963.0	−2.3	84	wnw.	4.9	2,477	736.0	−13.6	0.38	94	1.77	.....	13.6	2,427	5,800	3/10 St.Cu., wnw.; 7/10 St., wnw.
						2,500	733.9	−13.8	.....	94	1.73	.....	13.7	2,450	5,710	10/10 St. Cu., nw.
12:58	962.7	−2.0	83	nw.	8.9	2,728	711.7	−15.1	0.44	92	1.50	.....	15.1	2,673	5,000	Few A.Cu., wnw.; 9/10 St. Cu., wnw.
						2,500	733.9	−14.4	.....	93	1.62	.....	14.7	2,450	4,180	
1:25	963.0	−2.2	81	wnw.	10.7	2,422	740.9	−14.2	0.46	93	1.66	.....	14.5	2,373	3,900	10/10 St., wnw.
						2,250	758.2	−13.4	.....	94	1.80	.....	14.5	2,205	2,990	
						2,000	783.4	−12.3	.....	95	2.00	.....	14.5	1,960	2,100	
1:57	963.4	−2.3	80	nw.	10.7	1,785	805.6	−11.3	−0.30	96	2.22	.....	14.5	1,749	1,720	
						1,750	809.5	−11.4	.....	96	2.20	.....	.....	1,715	1,660	
2:02	963.4	−2.4	81	nw.	8.9	1,548	830.9	−12.0	0.78	96	2.08	.....	.....	1,517	1,280	
						1,500	836.2	−11.7	.....	96	2.14	.....	.....	1,470	1,190	
						1,250	864.0	− 9.7	.....	98	2.62	.....	.....	1,225	730	Altitude of St.Cu. base 1,100 to 1,200 m.
						1,000	892.1	− 7.7	.....	99	3.15	.....	.....	980	350	
2:21	963.7	−2.5	80	nw.	9.8	974	895.2	− 7.5	0.50	99	3.20	wnw.	.....	955	310	
2:30	963.7	−2.5	78	nw.	9.8	775	918.3	− 6.5	0.98	100	3.53	nw.	.....	760	0	
						750	921.1	− 6.3	.....	99	3.55	nw.	.....	735	0	
						500	950.9	− 3.8	.....	87	3.86	nw.	.....	490	0	
2:44	964.0	−2.8	82	nw.	9.4	396	964.0	− 2.8	.....	82	3.97	nw.	9.4	388	.....	10/10 St.Cu., wnw.

December 19, 1915.

A. M.																
9:56	976.6	−9.7	100	sw.	3.1	396	976.6	− 9.7	.....	100	2.67	sw.	3.1	388	.....	Cloudless.
9:58	976.6	−9.4	99	sw.	4.0	484	965.7	− 9.9	0.23	86	2.25	wsw.	.....	475	210	
						500	963.5	− 9.7	.....	86	2.30	w.	.....	490	240	
						750	933.5	− 6.2	.....	82	2.97	wnw.	.....	735	780	
10:03	976.6	−8.5	98	sw.	2.7	781	929.6	− 5.7	−1.41	82	3.10	nw.	.....	766	840	
						1,000	904.1	− 5.0	.....	72	2.89	nw.	.....	980	1,260	
10:14	976.8	−7.9	98	sw.	2.2	1,010	903.0	− 5.0	−0.31	72	2.89	nw.	.....	990	1,280	
						1,250	875.5	− 5.9	.....	63	2.34	nw.	.....	1,225	1,740	
10:22	976.8	−8.0	97	sw.	2.2	1,286	871.7	− 6.1	0.40	62	2.26	nw.	14.0	1,261	1,800	
						1,500	848.2	− 7.5	.....	58	1.87	nw.	15.1	1,470	2,290	
10:32	976.9	−7.7	96	wsw.	2.7	1,727	824.0	− 9.0	0.66	54	1.53	nw.	16.3	1,693	2,800	
						1,750	821.5	− 9.2	.....	54	1.51	nw.	16.4	1,715	2,860	
						2,000	795.0	−11.3	.....	56	1.29	nw.	18.2	1,960	3,530	
						2,250	769.5	−13.3	.....	57	1.10	nw.	19.9	2,205	4,190	
10:47	976.9	−7.3	89	wsw.	2.2	2,371	757.6	−14.3	0.82	58	1.02	nw.	20.7	2,323	4,500	
						2,500	744.6	−15.1	.....	60	0.98	nw.	20.0	2,450	4,760	
11:04	977.0	−6.9	84	w.	2.7	2,700	725.3	−16.3	0.61	62	0.91	wnw.	19.0	2,646	5,170	
						2,750	720.7	−16.5	.....	61	0.87	wnw.	19.2	2,694	5,270	
						3,000	697.0	−17.4	.....	57	0.75	wnw.	20.0	2,939	5,770	
						3,250	674.2	−18.4	.....	52	0.62	wnw.	20.9	3,184	5,950	
11:28	976.9	−5.6	79	w.	4.0	3,349	665.3	−18.7	0.37	50	0.58	wnw.	21.2	3,281	6,020	
						3,500	651.9	.....	.....	48	.....	wnw.	.....	3,429	6,120	
11:36	976.8	−5.4	78	w.	4.0	3,653	639.1	.....	.....	46	.....	wnw.	.....	3,578	.....	Cloudless.
						3,500	651.9	.....	.....	44	.....	wnw.	.....	3,429	.....	
						3,250	674.2	−18.0	.....	41	0.51	wnw.	.....	3,184	.....	
						3,000	697.0	−16.2	.....	39	0.58	wnw.	.....	2,939	.....	
P. M.																
12:05	976.6	−5.0	78	w.	4.5	2,942	703.0	−15.8	0.43	38	0.58	wnw.	.....	2,882	.....	
						2,750	720.7	−15.0	.....	38	0.63	wnw.	.....	2,694	3,090	
12:14	976.6	−5.0	78	w.	4.5	2,639	731.7	−14.5	−0.05	38	0.66	wnw.	.....	2,586	2,970	
						2,500	744.6	−14.6	.....	39	0.67	wnw.	.....	2,450	2,820	
12:16	976.6	−5.0	78	w.	4.5	2,453	749.6	−14.6	0.85	39	0.67	wnw.	.....	2,404	2,770	
						2,250	769.5	−12.9	.....	42	0.84	wnw.	.....	2,205	2,450	
						2,000	795.0	−10.7	.....	46	1.12	wnw.	.....	1,960	2,000	
12:32	976.6	−4.6	70	w.	4.5	1,903	805.6	− 9.9	0.86	48	1.26	wnw.	17.7	1,865	1,830	
						1,750	821.5	− 8.6	.....	46	1.35	wnw.	15.3	1,715	1,570	
						1,500	848.2	− 6.5	.....	42	1.48	wnw.	11.5	1,470	1,140	
12:45	976.6	−3.9	71	w.	4.9	1,401	859.6	− 5.6	0.24	41	1.56	wnw.	10.0	1,373	970	
						1,250	875.5	− 5.2	.....	41	1.62	wnw.	9.1	1,225	820	
						1,000	904.1	− 4.6	.....	40	1.66	wnw.	7.6	980	640	
12:52	976.6	−3.7	70	wsw.	5.4	906	915.3	− 4.4	0.60	40	1.69	wnw.	7.0	888	580	
						750	933.5	− 5.3	.....	45	1.76	w.	6.6	735	450	
1:03	976.6	−4.0	73	wsw.	5.8	604	951.2	− 6.2	1.01	50	1.81	w.	6.3	592	260	
						500	963.5	− 5.1	.....	62	2.47	wsw.	6.0	490	140	
1:08	976.6	−4.1	74	wsw.	5.8	396	976.6	− 4.1	.....	74	3.20	wsw.	5.8	388	.....	Cloudless.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 20, 1915.

Surface.						At different heights above sea.										Remarks
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^3 *ergs.*	*volts.*	
9:20	974.6	−6.7	89	wnw.	5.4	396	974.6	− 6.7	.....	89	3.09	wnw.	5.4	388	.....	Cloudless.
						500	961.2	− 5.1	.....	90	3.58	wnw.	5.7	490	0	
9:24	974.6	−6.6	90	wnw.	4.9	723	935.0	− 1.7	−1.53	91	4.82	nw.	6.4	709	0	
						750	931.8	− 1.8	.....	90	4.73	nw.	6.5	735	0	
						1,000	902.5	− 2.3	.....	81	4.08	nw.	7.2	980	720	
						1,250	874.8	− 2.9	.....	71	3.41	nw.	8.0	1,225	1,030	
						1,500	847.9	− 3.4	.....	62	2.85	nw.	8.7	1,470	1,250	
10:33	974.6	−4.4	83	nw.	4.0	1,572	840.4	− 3.6	0.22	59	2.67	nw.	8.9	1,541	1,320	Few A.St., nw.
						1,750	820.0	− 4.6	.....	56	2.32	nw.	9.8	1,715	1,490	
						2,000	795.9	− 6.1	.....	53	1.93	nw.	11.0	1,960	1,720	
						2,250	770.8	− 7.5	.....	49	1.58	nw.	12.3	2,205	2,200	
10:58	974.6	−4.3	84	wnw.	4.9	2,377	758.4	− 8.3	0.58	47	1.42	nw.	12.9	2,329	2,520	
						2,500	746.2	− 9.0	.....	46	1.31	nw.	13.5	2,450	2,820	
						2,750	722.8	−10.5	.....	43	1.07	nw.	14.6	2,694	3,240	
11:13	974.5	−3.8	82	wnw.	3.1	2,990	700.3	−12.0	0.60	40	0.87	nw.	15.7	2,929	3,640	
						3,000	699.4	−12.0	.....	40	0.87	nw.	15.7	2,939	3,660	
						3,250	676.3	−13.1	.....	35	0.69	nw.	17.1	3,184	4,070	
						3,500	653.7	−14.2	.....	30	0.53	nw.	18.5	3,429	4,490	
11:46	974.1	−3.0	82	wnw.	3.1	3,683	639.1	−14.9	0.42	27	0.45	nw.	19.5	3,608	4,800	
						3,750	632.1	−15.1	.....	27	0.44	nw.	19.6	3,673	4,910	
P. M.																
12:14	973.8	−2.9	80	wnw.	4.0	3,997	613.0	−15.9	0.32	26	0.40	nw.	20.1	3,915	5,330	
12:40	973.6	−2.1	80	wnw.	3.6	4,238	593.7	−15.2	−0.29	.....	.....	nw.	28.3	4,150	5,730	Few Ci., nw.; few A.St., nw.
						4,250	592.9	−15.3	.....	.....	.....	nw.	28.1	4,162	5,760	
12:58	973.3	−1.4	83	wnw.	2.7	4,435	579.0	−16.3	0.48	.....	.....	nw.	25.7	4,343	.....	
						4,250	593.8	−15.6	.....	.....	.....	nw.	24.6	4,162	.....	
1:20	973.0	−1.2	87	wnw.	1.3	4,134	602.6	−15.1	−0.40	.....	.....	nw.	23.9	4,049	.....	
1:24	973.0	−1.2	88	wnw.	1.3	4,059	608.6	−15.4	0.66	.....	.....	nw.	21.5	3,975	.....	
						4,000	613.9	−15.0	.....	.....	.....	nw.	21.5	3,918	.....	
						3,750	634.5	−13.3	.....	.....	.....	nw.	21.6	3,673	3,670	
1:38	972.9	−0.7	76	wnw.	1.8	3,742	634.6	−13.3	−0.28	.....	.....	nw.	21.6	3,665	3,660	
1:40	972.9	−0.5	74	wnw.	1.8	3,635	643.6	−13.6	0.31	.....	.....	nw.	21.6	3,561	3,440	
						3,500	655.1	−13.2	.....	.....	.....	nw.	19.8	3,429	3,118	
						3,250	676.8	−12.4	.....	.....	.....	nw.	18.4	3,184	2,680	
						3,000	699.0	−11.6	.....	.....	.....	nw.	17.0	2,939	2,270	
1:56	972.6	0.2	69	sw.	1.8	2,968	701.9	−11.5	0.74	.....	.....	nw.	16.8	2,908	2,230	
						2,750	721.8	− 9.9	.....	.....	.....	nw.	14.8	2,694	1,970	
						2,500	744.9	− 8.1	.....	.....	.....	nw.	12.5	2,450	1,660	
2:08	972.5	0.1	69	sw.	1.8	2,317	763.5	− 6.7	0.57	.....	.....	nw.	10.9	2,270	1,440	3/10 Ci., nw.
						2,250	769.0	− 6.3	.....	.....	.....	nw.	10.4	2,205	1,370	
						2,000	795.9	− 4.9	.....	.....	.....	nw.	8.3	1,960	1,120	
						1,750	821.9	− 3.5	.....	.....	.....	wnw.	6.3	1,715	880	
						1,500	846.1	− 2.1	.....	.....	.....	wnw.	4.3	1,470	630	
2:20	972.4	−0.1	67	sw.	1.8	1,334	864.5	− 1.1	0.33	24	1.34	wnw.	3.0	1,308	460	
						1,250	873.4	− 0.8	.....	26	1.48	wnw.	3.4	1,225	380	
2:32	972.3	−0.5	68	ssw.	2.2	1,001	901.2	0.0	−0.47	32	1.96	wnw.	4.4	981	140	
						750	930.1	− 1.2	.....	44	2.43	w.	3.5	735	0	
2:37	972.3	−0.8	69	sw.	2.2	537	955.0	− 2.2	0.99	55	2.80	wsw.	2.7	526	0	
						500	959.4	− 1.8	.....	58	3.05	wsw.	2.5	490	0	
2:38	972.3	−0.8	69	sw.	2.2	396	972.3	− 0.8	.....	69	3.94	sw.	2.2	388	.....	7/10 Ci., nw.

December 21, 1915 (series No. 1).

A. M.																
9:02	966.5	−3.4	82	nw.	3.6	396	966.5	− 3.4	.....	82	3.77	nw.	3.6	388	.....	Cloudless.
9:03	966.5	−3.4	83	nnw.	3.1	492	954.7	− 3.1	−0.31	71	3.34	nnw.	15.4	482	0	
						500	954.1	− 3.0	.....	71	3.37	nnw.	15.2	490	0	
						750	925.0	0.6	.....	70	4.47	nnw.	12.4	735	0	
9:06	966.5	−3.2	84	nnw.	3.1	801	918.6	1.4	−1.46	70	4.73	nnw.	11.8	785	0	
9:14	966.6	−2.9	85	nnw.	2.2	912	906.2	1.3	0.09	72	4.83	nnw.	11.6	894	380	
						1,000	896.5	1.0	.....	70	4.60	nnw.	12.0	980	470	
						1,250	868.8	0.1	.....	68	4.18	nnw.	13.2	1,225	730	
9:25	966.6	−2.3	79	nnw.	2.2	1,262	867.7	0.1	0.34	68	4.18	nnw.	13.3	1,237	750	
						1,500	842.1	− 2.0	.....	68	3.52	nnw.	12.0	1,470	1,000	
9:46	966.7	−1.7	73	nnw.	2.2	1,603	831.6	− 2.9	0.88	68	3.26	nnw.	11.4	1,571	1,100	
						1,750	816.8	− 3.8	.....	64	2.84	nnw.	10.8	1,715	1,260	
						2,000	791.6	− 5.5	.....	58	2.23	nw.	9.9	1,960	1,500	
10:37	967.0	−1.1	74	n.	5.8	2,164	774.7	− 6.5	0.64	54	1.91	nw.	9.3	2,121	1,560	
						2,250	766.7	− 6.9	.....	53	1.81	nw.	9.2	2,205	1,660	
						2,500	742.2	− 8.0	.....	51	1.58	nw.	9.0	2,450	1,950	
						2,750	718.7	− 9.2	.....	49	1.37	nw.	8.8	2,694	2,240	
						3,000	695.5	−10.3	.....	47	1.19	nw.	8.6	2,939	.....	
11:09	967.2	0.2	76	nw.	4.9	3,133	684.0	−10.9	0.50	46	1.10	nw.	8.5	3,069	.....	
						3,000	695.5	−10.2	.....	45	1.15	nw.	8.8	2,939	.....	
						2,750	718.7	− 8.8	.....	44	1.27	nw.	9.4	2,694	2,110	
						2,500	742.2	− 7.4	.....	42	1.37	nw.	10.0	2,450	1,580	
11:23	967.0	0.7	75	nw.	2.2	2,490	743.5	− 7.4	0.57	42	1.37	nw.	10.0	2,440	1,550	
						2,250	766.7	− 6.0	.....	45	1.66	nw.	10.4	2,205	980	
						2,000	791.6	− 4.6	.....	47	1.95	nnw.	10.9	1,960	840	
11:48	966.9	0.9	72	nw.	2.2	1,754	816.4	− 3.2	0.73	50	2.34	nnw.	11.3	1,719	700	
						1,500	842.1	− 1.3	.....	51	2.79	nnw.	10.8	1,470	350	
						1,250	868.8	0.5	.....	52	3.29	nw.	10.4	1,225	0	
NOON	966.9	1.0	74	nw.	3.1	1,140	881.6	1.3	0.56	52	3.49	nw.	10.2	1,118	0	
P. M.																
12:05	966.9	1.6	71	nw.	3.6	1,000	896.5	2.1	.....	52	3.70	nw.	10.1	980	0	
12:10	966.9	1.4	71	nw.	3.6	839	915.2	3.0	0.00	52	3.94	nw.	10.0	823	0	
						777	922.2	3.0	−1.40	53	4.02	nw.	8.3	762	0	
						750	925.0	2.6	.....	54	3.98	nw.	8.3	735	0	
12:12	966.7	1.3	72	nw.	3.6	542	949.3	− 0.3	1.03	66	3.93	nw.	8.3	531	0	
						500	954.1	0.1	.....	68	4.18	nw.	7.4	490	0	
12:14	966.7	1.2	72	nw.	3.4	396	966.7	1.2	.....	72	4.80	nw.	5.4	388	.....	Cloudless.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 21, 1915 (series No. 2).

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
1:53	966.3	3.0	70	wnw.	4.5	396	966.3	3.0	.....	70	5.31	wnw.	4.5	388	.....	Cloudless.
						500	954.0	1.9	.....	71	4.98	wnw.	7.0	490	0	
2:00	966.3	3.1	71	w.	4.9	630	938.7	0.6	1.03	72	4.59	wnw.	10.4	618	0	
						750	925.2	1.5	.....	67	4.56	wnw.	9.2	735	0	
2:09	966.3	3.2	71	w.	5.4	831	915.6	2.2	−0.80	63	4.51	wnw.	8.3	815	0	
						1,000	897.0	1.1	.....	63	4.17	wnw.	8.2	980	80	
						1,250	869.3	− 0.6	.....	62	3.60	wnw.	8.1	1,225	390	
2:30	966.3	3.4	71	w.	4.9	1,483	844.1	− 2.1	0.66	62	3.18	wnw.	8.0	1,454	680	
						1,500	842.0	− 2.2	.....	62	3.16	wnw.	8.0	1,470	690	
						1,750	815.9	− 3.6	.....	59	2.67	wnw.	8.6	1,715	810	
3:00	966.3	3.9	70	w.	4.0	1,888	801.9	− 4.3	0.54	58	2.47	wnw.	9.0	1,850	870	Few A.St., wnw.
						2,000	790.4	− 4.9	.....	57	2.31	wnw.	9.7	1,960	940	
						2,250	765.8	− 6.3	.....	56	2.01	wnw.	11.4	2,205	1,190	
						2,500	741.4	− 7.7	.....	56	1.78	wnw.	13.1	2,450	1,420	
3:25	966.1	4.0	69	w.	2.2	2,694	723.2	− 8.8	0.56	55	1.59	wnw.	14.4	2,640	1,600	
						2,750	718.0	− 9.0	.....	54	1.53	wnw.	14.4	2,694	1,630	
						3,000	694.9	−10.3	.....	50	1.26	wnw.	14.3	2,939	1,790	
						3,250	672.8	−11.5	.....	47	1.07	wnw.	14.2	3,184	.....	
3:45	965.9	3.7	72	w.	4.5	3,416	658.4	−12.4	0.50	44	0.92	wnw.	14.1	3,346	.....	
3:51	965.9	3.6	73	w.	4.5	3,474	653.6	−12.6	0.32	43	0.88	wnw.	13.6	3,403	.....	
3:56	965.8	3.6	73	w.	4.0	3,334	666.1	−12.2	0.77	42	0.89	wnw.	14.1	3,266	.....	
						3,250	672.8	−11.6	.....	42	0.94	wnw.	14.2	3,184	.....	
						3,000	694.9	− 9.6	.....	42	1.13	wnw.	14.7	2,939	.....	
4:07	965.8	3.5	75	w.	3.1	2,945	700.8	− 9.2	0.56	42	1.17	wnw.	14.8	2,885	1,400	
						2,750	718.0	− 8.1	.....	42	1.29	wnw.	14.1	2,694	1,160	
						2,500	741.4	− 6.7	.....	41	1.42	wnw.	13.1	2,450	860	
4:18	965.7	3.3	74	w.	3.6	2,388	752.5	− 6.1	0.44	41	1.50	wnw.	12.7	2,340	700	
						2,250	765.8	− 5.5	.....	41	1.57	wnw.	11.7	2,205	670	
						2,000	790.4	− 4.4	.....	42	1.77	wnw.	10.0	1,960	620	
						1,750	815.9	− 3.3	.....	42	1.95	wnw.	8.3	1,715	150	
4:32	965.7	2.7	76	w.	4.0	1,708	820.4	− 3.1	0.64	42	1.98	wnw.	8.0	1,674	0	Few A.St., wnw.
						1,500	842.1	− 1.7	.....	45	2.38	wnw.	9.2	1,470	0	
						1,250	868.8	− 0.2	.....	49	2.94	wnw.	10.5	1,225	0	
4:44	965.7	2.7	76	w.	3.6	1,225	871.7	0.0	0.84	49	2.99	wnw.	10.6	1,201	0	
						1,000	896.1	1.9	.....	47	3.29	wnw.	10.9	980	0	
4:50	965.6	3.0	73	wsw.	3.1	796	919.2	3.6	0.10	46	3.64	wnw.	11.2	780	0	
						750	924.2	3.6	.....	47	3.72	wnw.	10.9	735	0	
						500	953.0	3.9	.....	52	4.20	w.	9.2	490	0	
4:56	965.6	2.8	75	wsw.	3.1	484	955.0	3.9	−1.25	52	4.20	w.	9.1	475	0	
4:57	965.6	2.8	75	wsw.	3.6	396	965.6	2.8	.....	75	5.60	wsw.	3.6	388	.....	Few Ci.St., nw.

December 21, 1915 (series No. 3).

P. M.																
6:14	965.7	1.8	75	sw.	4.5	396	965.7	1.8	.....	75	5.22	sw.	4.5	388	.....	2/10 Ci., wnw.
						500	953.2	3.2	.....	74	5.69	wsw.	7.9	490	0	
6:17	965.7	1.8	75	sw.	4.0	584	943.6	4.4	− 1.38	74	6.19	wsw.	10.9	573	0	
						750	924.9	3.9	.....	62	5.01	w.	9.0	735	0	
6:23	965.7	1.8	75	sw.	4.5	773	921.8	3.9	0.26	60	4.85	w.	8.7	758	0	Few Ci., wnw.
						1,000	896.1	2.3	.....	56	4.04	w.	9.9	980	170	
6:40	965.8	1.3	76	sw.	4.5	1,219	872.4	0.8	0.70	53	3.43	w.	11.1	1,195	330	
						1,250	868.9	0.6	.....	52	3.32	w.	11.2	1,225	350	
						1,500	842.2	− 0.7	.....	48	2.76	w.	11.8	1,470	480	
6:57	965.8	1.1	78	sw.	4.5	1,724	819.2	− 1.9	0.54	44	2.30	w.	12.3	1,690	600	
						1,750	816.8	− 2.1	.....	44	2.26	w.	12.4	1,715	630	
						2,000	791.0	− 3.7	.....	44	1.97	w.	13.6	1,960	890	
						2,250	766.6	− 5.3	.....	44	1.72	wnw.	14.7	2,205	1,150	
7:18	965.7	0.9	79	sw.	4.5	2,394	752.4	− 6.3	0.66	44	1.58	wnw.	15.4	2,346	1,300	
						2,500	742.5	− 6.8	.....	44	1.51	wnw.	15.8	2,450	1,370	
						2,750	719.0	− 7.9	.....	43	1.34	wnw.	16.7	2,694	1,540	
7:38	965.6	0.8	79	sw.	5.4	2,857	708.6	− 8.4	0.45	43	1.29	wnw.	17.1	2,799	1,600	2/10 Ci., nw.
						3,000	696.0	− 9.5	.....	46	1.25	wnw.	17.8	2,939	1,860	
						3,250	673.8	−11.3	.....	52	1.20	wnw.	18.9	3,184	2,300	
						3,500	652.0	−13.1	.....	58	1.14	wnw.	20.1	3,429	2,740	
8:04	965.4	0.6	79	sw.	5.4	3,539	648.6	−13.3	0.69	59	1.14	wnw.	20.3	3,467	2,800	
						3,500	652.0	−13.1	.....	60	1.18	wnw.	20.0	3,429	2,740	
						3,250	673.8	−11.4	.....	65	1.49	wnw.	18.3	3,184	2,280	
						3,000	696.0	− 9.7	.....	70	1.87	wnw.	16.6	2,939	1,840	
8:26	965.4	0.6	79	sw.	5.4	2,982	697.4	− 9.6	0.70	70	1.88	wnw.	16.5	2,922	1,800	
						2,750	719.0	− 8.0	.....	67	2.08	wnw.	15.2	2,694	1,560	
						2,500	742.5	− 6.3	.....	64	2.30	wnw.	13.8	2,450	1,300	
8:43	965.3	0.6	77	sw.	4.5	2,407	750.8	− 5.6	0.57	63	2.40	wnw.	13.3	2,359	1,200	4/10 Ci., nw.
						2,250	766.6	− 4.7	.....	62	2.55	wnw.	13.4	2,205	1,060	
						2,000	791.0	− 3.3	.....	59	2.74	wnw.	13.5	1,960	850	
						1,750	816.8	− 1.9	.....	57	2.98	wnw.	13.6	1,715	600	
8:55	965.3	0.4	76	sw.	4.9	1,742	817.4	− 1.8	0.67	57	3.00	wnw.	13.6	1,707	600	
						1,500	842.2	− 0.2	.....	53	3.19	wnw.	11.5	1,470	440	
						1,250	868.9	1.5	.....	49	3.34	wnw.	9.2	1,225	260	Lunar halo after 9:05 p. m.
9:10	965.3	0.1	78	sw.	4.9	1,187	875.9	1.9	0.72	48	3.36	wnw.	8.8	1,164	0	
						1,000	896.1	3.2	.....	47	3.61	wnw.	8.8	980	0	
9:23	965.2	−0.2	78	ssw.	4.0	755	923.7	5.0	0.43	45	3.92	w.	8.8	740	0	
						750	924.9	5.0	.....	45	3.92	w.	8.7	735	0	
						500	953.2	6.1	.....	45	4.24	wsw.	5.7	490	0	
9:28	965.2	−0.3	77	ssw.	4.5	455	958.1	6.3	−11.19	45	4.30	sw.	5.2	446	0	
9:30	965.2	−0.3	77	ssw.	4.5	396	965.2	− 0.3	.....	77	4.59	ssw.	4.5	388	.....	5/10 Ci., nw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 21, 1915, & December 22, 1915 (series No. 4).

Surface.						At different heights above sea.										
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
10:12	964.9	−0.2	79	SSW.	5.4	396	964.9	− 0.2	.....	79	4.75	SSW.	5.4	388	.....	5/10 Cl., nw.
						500	952.5	3.0	.....	70	5.31	SW.	7.3	490	0	Lunar halo continued.
10:15	964.9	−0.2	79	SSW.	5.4	603	940.6	6.1	− 3.04	61	5.75	WSW.	9.3	591	0	
						750	924.0	5.4	.....	56	5.02	WSW.	12.1	735	0	
10:21	964.9	−0.2	79	SSW.	5.8	794	918.9	5.2	0.47	54	4.78	WSW.	12.9	779	0	6/10 Cl., nw.
						1,000	895.7	4.2	.....	54	4.46	W.	10.3	980	0	
10:54	964.5	−0.1	79	SSW.	6.7	1,095	885.0	3.8	0.47	54	4.33	W.	9.1	1,073	40	
						1,250	868.1	3.0	.....	54	4.09	W.	10.5	1,225	230	
						1,500	841.5	1.7	.....	54	3.73	W.	12.3	1,470	530	
11:05	964.5	−0.1	79	SSW.	7.6	1,688	822.5	0.7	0.52	54	3.47	W.	14.6	1,654	710	
						1,750	815.8	0.2	.....	54	3.35	W.	14.8	1,715	760	7/10 Cl., nw.
						2,000	790.5	− 1.6	.....	54	2.89	WNW.	15.8	1,960	980	
						2,250	766.1	− 3.3	.....	54	2.51	WNW.	16.7	2,205	1,300	
11:29	964.4	−0.2	79	SSW.	6.3	2,261	765.4	− 3.4	0.72	54	2.48	WNW.	16.8	2,216	1,320	
						2,500	742.1	− 5.4	.....	64	2.48	WNW.	.....	2,450	1,620	
						2,750	719.0	− 7.5	.....	74	2.39	WNW.	.....	2,694	1,980	
11:40	964.4	−0.2	79	SSW.	6.3	2,797	714.8	− 7.9	0.84	76	2.37	WNW.	.....	2,740	2,050	
						3,000	696.0	− 9.3	.....	86	2.37	WNW.	.....	2,939	2,380	Lunar halo ended at midnight.
						3,250	674.2	−11.0	.....	99	2.35	NW.	.....	3,184	2,770	
A. M.																
12:16	964.1	0.3	76	SSW.	8.0	3,269	673.0	−11.1	0.72	100	2.35	NW.	.....	3,202	2,800	
						3,250	674.2	−11.0	.....	100	2.37	NW.	.....	3,184	2,770	
						3,000	697.6	− 9.1	.....	100	2.81	NW.	.....	2,939	2,260	
12:30	964.1	0.2	76	S.	7.2	2,830	713.2	− 7.8	0.82	100	3.15	.....	.....	2,773	1,930	9/10 Cl., nw.
						2,750	720.8	− 7.2	.....	97	3.22	.....	.....	2,694	1,770	
						2,500	743.8	− 5.1	.....	89	3.54	.....	.....	2,450	1,450	
						2,250	767.2	− 3.1	.....	80	3.77	.....	.....	2,205	1,140	
12:47	964.0	0.0	78	SW.	6.3	2,185	773.9	− 2.5	1.08	78	3.87	.....	14.7	2,141	1,050	
						2,000	791.9	− 0.5	.....	69	4.04	.....	15.2	1,960	900	
						1,750	817.1	2.2	.....	56	4.01	.....	15.8	1,715	630	
12:57	964.0	0.0	78	SSW.	6.3	1,732	819.2	2.4	0.79	55	3.99	.....	15.9	1,698	600	
						1,500	842.5	4.2	.....	52	4.29	.....	14.9	1,470	330	
1:08	964.0	−0.1	78	SW.	7.2	1,248	869.2	6.2	0.54	48	4.55	.....	13.6	1,223	0	
						1,000	895.3	7.5	.....	46	4.77	.....	12.6	980	0	
1:18	963.9	0.0	78	SW.	7.2	805	917.0	8.6	0.18	44	4.91	W.	11.8	789	0	
						750	923.1	8.7	.....	43	4.84	W.	12.0	735	0	
1:23	963.9	0.0	78	SW.	7.2	580	942.3	9.0	−10.71	40	4.59	WSW.	12.5	569	0	
						500	951.3	5.0	.....	57	4.97	WSW.	10.3	490	0	
1:26	963.9	0.0	78	SW.	7.6	396	963.9	0.0	.....	78	4.77	SW.	7.6	388	.....	4/10 Cl. St., nw.; 5/10 A.Cu., nw.

December 22, 1915 (series No. 5).

A. M.																
2:10	963.7	0.3	78	SW.	6.7	396	963.7	0.3	.....	78	4.87	SW.	6.7	388	.....	3/10 Cl. St., nw.; 7/10 A.Cu., nw.
						500	951.6	3.5	.....	69	5.42	WSW.	7.5	490	0	
2:15	963.7	0.5	77	SW.	6.3	677	931.2	9.0	−3.10	54	6.20	W.	8.8	664	0	
						750	923.0	8.7	.....	53	5.96	W.	9.4	735	0	
						1,000	895.1	7.8	.....	48	5.08	W.	11.6	980	0	
2:29	963.7	0.4	78	SW.	6.7	1,164	872.7	7.2	0.37	45	4.57	W.	13.0	1,141	0	
						1,250	868.4	6.4	.....	45	4.32	.....	12.4	1,225	60	10/10 A.Cu., nw.
						1,500	843.6	4.2	.....	47	3.88	.....	10.5	1,470	240	
3:20	963.6	0.8	79	SW.	8.0	1,729	819.2	2.2	0.88	48	3.44	.....	8.8	1,695	480	
						1,750	817.1	2.0	.....	49	3.46	.....	9.0	1,715	500	
						2,000	792.1	0.3	.....	56	3.49	.....	11.9	1,960	710	
						2,250	767.9	−1.4	.....	64	3.48	.....	14.8	2,205	1,040	
						2,500	743.9	−3.1	.....	71	3.34	.....	17.7	2,450	1,360	
3:35	963.6	0.8	79	SW.	7.6	2,566	737.6	−3.5	0.68	73	3.33	.....	18.5	2,514	1,440	
						2,750	720.5	−4.9	.....	80	3.24	.....	18.4	2,694	1,690	
						3,000	698.0	−6.8	.....	89	3.06	.....	18.4	2,939	.....	
3:47	963.4	0.9	79	SW.	7.2	3,191	681.2	−8.3	0.74	96	2.90	.....	18.3	3,126	.....	
						3,000	698.0	−7.0	.....	95	3.21	.....	18.2	2,939	.....	
						2,750	720.5	−5.2	.....	94	3.70	.....	18.0	2,694	1,680	
4:00	963.4	0.8	80	SW.	6.3	2,696	726.1	−4.8	0.91	94	3.84	.....	18.0	2,642	1,610	
						2,500	743.9	−3.1	.....	87	4.10	.....	17.4	2,450	1,350	
						2,250	767.9	−0.9	.....	77	4.37	.....	16.7	2,205	1,010	
4:13	963.3	0.8	79	SSW.	6.3	2,189	773.9	−0.2	0.80	75	4.51	.....	16.5	2,145	920	
						2,000	792.1	1.2	.....	71	4.73	.....	14.7	1,960	720	
						1,750	817.1	4.3	.....	65	5.40	.....	12.3	1,715	430	
4:22	963.2	0.8	80	SSW.	7.2	1,510	841.3	5.2	1.02	59	5.22	.....	10.0	1,480	160	3/10 Cl., nw.; 5/10 A.Cu., nw.
						1,500	843.6	5.3	.....	58	5.17	.....	10.2	1,470	150	
						1,250	868.4	7.8	.....	44	4.66	.....	13.8	1,225	0	
4:33	963.0	0.5	84	SW.	6.3	1,227	870.7	8.1	0.43	43	4.64	.....	14.1	1,203	0	3/10 Cl., nw.; few A.Cu., nw.
						1,000	895.1	9.1	.....	42	4.86	.....	13.8	980	0	
						750	923.0	10.2	.....	41	5.10	.....	13.6	735	0	
4:43	962.9	0.3	83	SW.	7.2	717	925.8	10.3	−3.15	41	5.14	.....	13.6	703	0	
						500	950.6	3.5	.....	69	5.42	.....	9.5	490	0	
4:47	962.7	0.2	83	SW.	7.6	396	962.7	0.2	.....	83	5.15	SW.	7.6	388	0	3/10 Cl., nw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 22, 1915 (series No. 6).

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	Δt / 100 m.	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
5:25	962.5	0.0	85	SSW.	7.2	396	962.5	0.0	.....	85	5.19	SSW.	7.2	388	.....	3/10 Ci., nw.
						500	950.9	3.7	.....	74	5.89	.....	9.2	490	0	
5:28	962.5	0.4	85	SSW.	7.6	709	926.3	10.7	−3.42	51	6.56	.....	13.2	695	0	
						750	922.5	10.4	.....	50	6.30	.....	13.0	735	0	
						1,000	895.0	8.8	.....	47	5.33	.....	11.7	980	0	
						1,250	868.0	7.2	.....	44	4.47	.....	10.5	1,225	80	
5:56	962.3	0.6	82	SSW.	6.3	1,383	853.9	6.3	0.65	42	4.01	.....	9.8	1,356	170	9/10 Ci. & Ci.St., nw.
						1,500	841.8	5.5	.....	43	3.88	.....	10.7	1,470	310	Lunar halo from 6 to 6:15 a. m.
						1,750	816.1	3.8	.....	46	3.69	.....	12.5	1,715	750	
						2,000	791.1	2.1	.....	49	3.48	.....	14.4	1,960	1,180	
6:27	961.9	0.4	83	SW.	6.3	2,106	781.0	1.4	0.68	50	3.38	.....	15.2	2,064	1,360	9/10 Ci.Cu., nw.; few A.Cu., nw.
						2,250	766.8	0.2	.....	52	3.22	.....	15.4	2,205	1,580	
						2,500	743.0	−2.0	.....	55	2.84	.....	15.9	2,450	1,970	
6:32	961.8	0.6	84	SW.	6.3	2,522	741.3	−2.2	0.87	55	2.80	.....	15.9	2,471	2,000	4/10 Ci.St., nw.; 3/10 A.St., nw.; 2/10 Ci.Cu., nw.
						2,750	719.8	−3.7	.....	62	2.78	.....	16.3	2,694	2,440	
						3,000	697.6	−5.4	.....	70	2.72	.....	16.7	2,939	2,870	
6:47	961.7	0.6	83	SW.	5.4	3,219	678.4	−6.9	0.67	77	2.63	.....	17.1	3,154	3,250	
						3,250	676.8	−6.9	.....	78	2.66	.....	17.3	3,184	3,300	
6:55	961.6	0.5	84	SW.	6.3	3,496	654.8	−7.3	0.21	88	2.90	.....	19.1	3,425	.....	
						3,250	676.8	−6.6	.....	93	3.26	.....	18.7	3,184	.....	
7:08	961.4	0.4	85	SW.	4.0	3,170	683.2	−6.4	0.75	94	3.35	W.	18.5	3,106	.....	
						3,000	697.6	−5.1	.....	88	3.50	W.	17.2	2,939	.....	
7:16	961.4	0.3	85	SW.	7.2	2,917	705.6	−4.5	0.78	85	3.56	W.	16.5	2,858	2,400	
						2,750	719.8	−3.2	.....	82	3.84	W.	16.4	2,694	2,190	
						2,500	743.0	−1.3	.....	79	4.33	W.	16.2	2,450	1,890	
7:31	961.4	0.1	87	SW.	8.5	2,264	766.0	0.6	0.84	75	4.78	W.	16.1	2,219	1,600	3/10 Ci.St., wnw.; 6/10 Ci.Cu. & A.Cu., wnw.
						2,250	766.8	0.7	.....	74	4.76	W.	16.1	2,205	1,580	
						2,000	791.1	2.8	.....	65	4.86	W.	15.6	1,960	1,230	
						1,750	816.1	4.9	.....	55	4.76	W.	15.0	1,715	970	
7:47	961.4	−0.2	89	SW.	7.6	1,681	823.0	5.5	0.64	52	4.70	W.	14.9	1,648	900	
						1,500	841.0	6.6	.....	50	4.88	W.	14.9	1,470	670	
						1,250	866.8	8.2	.....	46	5.00	W.	14.9	1,225	360	
7:58	961.4	−0.3	87	SW.	6.7	1,228	869.6	8.4	0.64	46	5.07	W.	14.9	1,204	330	
						1,000	893.5	9.8	.....	44	5.33	W.	15.1	980	140	
8:01	961.4	−0.2	86	SW.	7.2	930	901.3	10.3	−0.09	44	5.51	W.	15.1	912	90	
						750	921.0	10.1	.....	44	5.44	WSW.	14.2	735	0	
8:11	961.3	−0.1	85	SW.	7.2	602	937.3	10.0	−4.90	44	5.40	WSW.	13.6	590	0	
						500	949.2	5.1	.....	64	5.63	WSW.	10.8	490	0	
8:13	961.4	−0.1	85	SW.	8.0	396	961.4	−0.1	.....	85	5.15	SW.	8.0	388	.....	6/10 Ci., nw.

December 22, 1915 (series No. 7).

A. M.																
8:53	961.0	0.0	87	SW.	8.0	396	961.0	0.0	.....	87	5.32	SW.	8.0	388	.....	8/10 Ci., nw.
						500	948.6	3.5	.....	76	5.97	SW.	10.0	490	0	
8:56	961.0	0.1	87	SW.	8.9	711	924.8	10.7	−3.40	53	6.82	WSW.	14.1	697	0	
						750	920.6	10.6	.....	50	6.39	WSW.	14.5	735	0	
9:03	961.0	0.0	87	SW.	8.9	792	915.9	10.4	0.37	46	5.80	W.	15.0	777	0	
						1,000	893.0	9.8	.....	46	5.58	W.	13.8	980	280	
9:14	961.0	−0.2	81	SW.	8.9	1,220	869.7	9.1	0.30	45	5.20	W.	12.6	1,196	565	
						1,250	866.5	8.9	.....	45	5.13	W.	12.7	1,225	590	
						1,500	840.2	7.4	.....	44	4.53	W.	13.7	1,470	800	
9:26	960.9	−0.1	83	SW.	8.0	1,743	816.4	6.0	0.59	44	4.11	W.	14.6	1,708	1,000	6/10 Ci., nw.
						1,750	815.2	6.0	.....	44	4.11	W.	14.6	1,715	1,010	
						2,000	791.1	3.8	.....	47	3.77	W.	15.2	1,960	1,350	
						2,250	767.5	1.7	.....	50	3.46	WNW.	15.8	2,205	1,690	
9:40	960.9	1.0	85	SW.	7.2	2,334	759.3	1.0	0.85	51	3.35	WNW.	16.0	2,287	1,800	
						2,500	744.1	−0.3	.....	57	3.40	WNW.	17.7	2,450	2,500	
9:49	960.8	1.5	78	SW.	8.0	2,742	721.7	−2.1	0.76	66	3.39	WNW.	20.1	2,687	2,410	
						2,750	721.2	−2.2	.....	66	3.36	WNW.	20.2	2,694	2,430	
						3,000	699.0	−3.5	.....	69	3.15	WNW.	22.8	2,939	2,700	
9:59	960.8	1.9	72	SW.	8.9	3,176	683.2	−4.4	0.53	71	3.00	WNW.	24.7	3,111	2,700	3/10 Ci., nw.
10:08	960.8	2.2	76	SW.	8.0	3,254	676.8	−3.3	0.86	66	3.06	WNW.	24.8	3,188	2,700	
10:27	960.6	2.8	76	SW.	7.2	3,096	691.2	−3.8	0.54	72	3.20	WNW.	22.4	3,033	2,360	
10:36	960.6	2.9	75	SW.	6.7	3,022	697.6	−3.4	0.64	76	3.50	WNW.	20.7	2,961	2,200	2/10 Ci., wnw.
						3,000	699.0	−3.2	.....	76	3.56	WNW.	20.5	2,939	2,160	
						2,750	721.2	−1.7	.....	74	3.92	WNW.	18.5	2,694	1,740	
						2,500	744.1	−0.1	.....	72	4.36	NW.	16.5	2,450	1,310	
10:59	960.5	3.4	75	SW.	7.2	2,378	756.1	0.7	0.97	71	4.57	NW.	15.6	2,330	1,100	
						2,250	767.5	1.9	.....	69	4.84	NW.	15.1	2,205	990	
						2,000	791.1	4.4	.....	65	5.44	WNW.	14.0	1,960	770	
11:13	960.4	3.8	75	SW.	6.7	1,771	814.6	6.6	1.03	61	5.95	WNW.	13.0	1,736	565	
						1,750	815.2	6.8	.....	60	5.93	WNW.	13.0	1,715	530	
						1,500	840.2	9.4	.....	53	6.25	W.	13.3	1,470	260	
11:27	960.1	4.1	76	SW.	8.0	1,276	864.5	11.7	0.81	46	6.32	W.	13.5	1,251	0	
						1,250	866.5	11.9	.....	46	6.41	W.	13.4	1,225	0	
						1,000	893.0	13.9	.....	41	6.51	W.	12.0	980	0	
11:39	960.0	4.8	72	SW.	7.6	891	905.0	14.8	0.36	39	6.56	W.	11.4	874	0	2/10 Ci., wnw.
						750	920.2	15.3	.....	39	6.78	WSW.	11.5	735	0	
11:43	960.0	4.9	73	SW.	7.2	723	923.0	15.4	−3.21	39	6.82	WSW.	11.5	709	0	
						500	948.0	8.3	.....	62	6.79	SW.	9.0	490	0	
11:48	959.9	4.9	73	SW.	7.2	396	959.9	4.9	.....	73	6.32	SW.	7.2	388	.....	5/10 Ci., wnw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 22, 1915 (series No. 8).

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	Δt / 100 m.	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
P. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb*		*m. p. s.*	*10^3 ergs*	*volts.*	
12:44	959.7	6.7	68	sw.	5.8	396	959.7	6.7	.....	68	6.67	sw.	5.8	388	.....	5/10 Ci. Cu., wnw.
12:46	959.7	6.7	68	sw.	5.4	455	952.9	5.7	1.69	67	6.14	wsw.	12.3	446	30	
						500	946.8	6.7	.....	64	6.28	wsw.	12.6	490	50	
						750	919.9	12.4	.....	44	6.34	w.	14.5	735	150	
12:51	959.7	6.9	67	wsw.	5.8	794	914.7	13.4	−2.27	41	6.30	wnw.	14.8	779	170	
12:55	959.7	7.0	67	wsw.	5.4	827	911.2	12.3	3.33	38	5.44	wnw.	15.6	811	180	
12:56	959.7	7.0	67	wsw.	5.4	908	902.3	13.1	−0.99	37	5.58	wnw.	15.6	890	200	
						1,000	892.6	12.6	.....	36	5.25	wnw.	14.8	980	220	
1:04	959.7	6.9	68	wsw.	5.8	1,176	873.9	11.7	0.52	33	4.54	wnw.	13.4	1,153	260	
						1,250	866.2	11.0	.....	34	4.46	wnw.	13.0	1,225	340	
						1,500	840.5	8.7	.....	36	4.05	wnw.	11.7	1,470	610	
1:15	959.7	7.1	68	wsw.	5.4	1,566	834.1	8.1	0.92	37	4.00	wnw.	11.4	1,535	680	6/10 Ci. Cu., wnw.
						1,750	815.5	6.2	.....	42	3.98	wnw.	12.2	1,715	760	
1:35	959.7	7.4	69	wsw.	5.8	1,975	793.6	3.8	1.05	47	3.77	wnw.	13.2	1,936	835	8/10 C .St., wnw.
						2,000	791.0	3.6	.....	48	3.80	wnw.	13.4	1,960	860	
						2,250	767.0	1.5	.....	55	3.75	wnw.	15.4	2,205	1,090	
						2,500	743.4	−0.7	.....	62	3.57	wnw.	17.5	2,450	1,310	
1:47	959.7	7.4	69	wsw.	6.7	2,695	725.9	−2.3	0.85	66	3.33	wnw.	19.1	2,641	1,500	
						2,750	720.9	−2.7	.....	68	3.32	wnw.	19.3	2,694	1,560	
						3,000	698.2	−4.3	.....	76	3.24	wnw.	20.2	2,939	1,810	
						3,250	676.3	−6.0	.....	83	3.05	wnw.	21.1	3,184	2,060	
2:08	959.9	7.0	72	wsw.	5.4	3,291	672.8	−6.3	0.68	85	3.05	wnw.	21.2	3,224	2,100	9/10 Ci.St., wnw.
						3,250	676.3	−6.0	.....	85	3.13	wnw.	21.0	3,184	2,050	
						3,000	698.2	−4.3	.....	85	3.62	wnw.	19.4	2,939	1,760	
2:28	960.0	7.5	71	wsw.	5.4	2,781	717.6	−2.8	0.99	85	4.11	wnw.	18.1	2,725	1,500	
						2,750	720.9	−2.5	.....	84	4.17	wnw.	18.0	2,694	1,460	
						2,500	743.4	0.0	.....	75	4.58	wnw.	17.5	2,450	1,140	
						2,250	767.0	2.5	.....	66	4.82	wnw.	17.0	2,205	820	
2:43	960.1	7.6	70	wsw.	5.8	2,198	771.9	3.0	0.84	64	4.85	wnw.	16.9	2,154	750	9/10 A.St., wnw.
						2,000	791.0	4.7	.....	57	4.87	wnw.	16.9	1,960	670	
						1,750	815.5	6.8	.....	49	4.84	nw.	16.9	1,715	560	
2:58	960.3	7.5	70	wsw.	4.0	1,702	820.5	7.2	0.50	47	4.78	nw.	16.9	1,668	540	
						1,500	840.5	8.2	.....	47	5.11	nw.	15.7	1,470	340	
						1,250	866.2	9.5	.....	47	5.58	nnw.	14.1	1,225	90	
3:06	960.4	7.5	70	w.	2.7	1,161	875.7	9.9	−0.04	47	5.73	nnw.	13.6	1,138	0	
						1,000	892.6	9.8	.....	48	5.82	nnw.	17.2	980	0	
3:13	960.4	7.3	70	w.	2.7	897	904.1	9.8	−1.24	48	5.82	nnw.	19.5	879	0	
3:15	960.5	7.1	69	wsw.	2.2	800	914.7	8.6	0.23	49	5.47	nnw.	18.4	784	0	
						750	920.6	8.7	.....	50	5.62	nnw.	16.4	735	0	
						500	949.0	9.3	.....	54	6.33	nnw.	6.3	490	0	
3:25	960.5	7.0	69	sw.	2.2	493	949.2	9.3	−2.37	54	6.33	nnw.	6.0	483	0	
3:26	960.6	7.0	69	sw.	2.2	396	960.6	7.0	.....	69	6.91	sw.	2.2	388	.....	

December 22, 1915 (series 9).

P. M.																
4:14	961.4	9.0	65	nnw.	2.7	936	961.4	9.0	.....	65	7.46	nnw.	2.7	388	.....	8/10 A.Cu., wnw.
						500	949.5	8.5	.....	64	7.10	nnw.	6.9	490	0	
4:21	961.6	8.6	62	nnw.	2.7	743	922.1	7.4	0.46	62	6.39	nnw.	17.1	729	0	
						750	921.3	7.5	.....	61	6.33	nnw.	17.2	735	0	
4:29	961.7	8.2	64	nw.	2.7	906	904.3	9.0	−0.98	58	6.66	nw.	20.3	888	0	Weather becoming threatening.
						1,000	893.9	8.7	.....	58	6.52	nw.	20.2	980	0	
						1,250	867.6	8.0	.....	59	6.33	nw.	19.9	1,225	0	Brilliant rainbow, 4:37 to 4:55 p.m.
4:41	962.1	7.8	65	nw.	3.6	1,407	851.7	7.6	0.41	59	6.16	nw.	19.7	1,379	0	
						1,250	867.6	8.4	.....	59	6.50	nw.	19.7	1,225	0	
						1,000	894.3	9.8	.....	59	7.15	nnw.	19.7	980	0	Rain began 4:57 p. m.
5:02	962.5	7.6	65	nw.	3.6	850	911.3	10.6	−1.24	59	7.54	nnw.	19.7	833	0	
5:05	962.6	7.3	67	nw.	3.6	753	922.1	9.4	0.86	59	6.96	nnw.	18.1	738	0	
5:07	962.6	7.3	67	nw.	3.6	672	931.2	10.1	−1.05	59	7.29	nnw.	17.4	659	0	
						500	951.0	8.3	.....	63	6.90	nnw.	8.7	490	0	
5:10	962.6	7.2	66	nw.	3.6	396	962.6	7.2	.....	66	6.71	nw.	3.6	388	.....	Rain continued.

December 23, 1915.

A. M.																
8:50	970.2	1.6	67	wnw.	8.9	396	970.2	1.6	.....	67	4.60	wnw.	8.9	388	.....	5/10 Ci., wnw.
						500	958.0	1.0	.....	67	4.40	wnw.	11.5	490	0	
						750	928.8	−0.4	.....	68	4.02	nw.	18.0	735	0	
8:58	970.2	1.9	66	wnw.	8.5	777	925.3	−0.6	0.58	68	3.95	nw.	18.7	762	0	Solar halo 8:55 to 9:30 a. m.
						1,000	899.8	−2.2	.....	70	3.56	nw.	21.3	980	260	
9:02	970.2	2.0	66	wnw.	7.6	1,057	893.3	−2.7	0.75	70	3.42	nw.	22.1	1,036	310	
9:08	970.3	2.2	64	wnw.	7.6	1,183	879.3	−0.8	−1.51	63	3.60	nw.	21.1	1,160	460	
						1,250	871.9	−1.2	.....	62	3.43	nw.	21.1	1,225	560	
9:14	970.5	2.3	63	wnw.	8.0	1,473	848.1	−2.4	0.55	58	2.90	nw.	21.2	1,444	880	
						1,500	845.0	−2.4	.....	57	2.85	nw.	21.6	1,470	910	
						1,750	819.1	−2.7	.....	47	2.29	nnw.	25.7	1,715	1,130	
9:24	970.7	2.2	63	wnw.	6.7	1,783	815.9	−2.7	0.10	46	2.24	nnw.	26.3	1,748	1,160	
						2,000	793.8	−3.9	.....	30	1.32	nnw.	25.4	1,960	1,360	
9:32	970.9	2.3	63	wnw.	5.4	2,063	787.4	−4.3	0.57	25	1.06	nnw.	25.1	2,022	1,400	
						2,250	769.1	−5.4	.....	19	0.74	nw.	25.5	2,205	1,640	
9:46	971.3	2.5	60	wnw.	4.5	2,389	756.0	−6.1	0.55	14	0.51	wnw.	25.8	2,341	1,800	
						2,500	745.1	−6.8	.....	.....	.....	wnw.	26.4	2,450	1,970	
						2,750	721.8	−8.2	.....	.....	.....	wnw.	28.0	2,694	2,340	
10:18	971.4	2.3	63	wnw.	8.5	2,996	699.5	−9.5	0.58	.....	.....	wnw.	29.5	2,935	2,700	9/10 Ci., wnw.
						2,750	722.0	−8.1	.....	.....	.....	wnw.	27.0	2,694	2,170	Solar halo 10:29 a. m. until after end of flight.
						2,500	745.9	−6.6	.....	.....	.....	wnw.	24.4	2,450	1,620	
10:49	971.3	3.0	62	nw.	6.7	2,443	751.2	−6.2	0.66	.....	.....	wnw.	23.8	2,394	1,500	
						2,250	770.0	−4.9	.....	.....	.....	wnw.	23.3	2,205	1,260	
11:02	971.3	2.6	63	nw.	7.6	2,005	794.1	−3.3	0.44	.....	.....	wnw.	22.6	1,965	1,000	
						2,000	794.6	−3.3	.....	.....	.....	wnw.	22.6	1,960	1,000	
						1,750	820.9	−2.2	.....	.....	.....	nw.	20.6	1,715	690	
11:12	971.1	3.0	62	nw.	7.6	1,529	843.0	−1.2	0.00	.....	.....	nnw.	18.9	1,499	430	
						1,500	847.0	−1.2	.....	.....	.....	nnw.	18.7	1,470	390	
11:20	971.1	3.6	62	nw.	6.3	1,304	867.2	−1.2	0.60	13	0.72	nw.	17.7	1,278	0	10/10 Ci.St., wnw.
						1,250	873.4	−0.9	.....	16	0.91	nw.	17.6	1,225	0	
11:28	971.1	3.3	60	nw.	6.3	1,019	898.6	0.5	−0.78	30	1.90	wnw.	17.2	999	0	
						1,000	900.4	0.4	.....	32	2.01	wnw.	16.8	980	0	
11:36	971.0	3.2	59	nw.	6.7	815	921.7	−1.1	1.05	52	2.90	wnw.	13.2	799	0	
						750	929.1	−0.4	.....	53	3.13	wnw.	12.2	735	0	
						500	959.0	2.2	.....	59	4.22	nw.	8.3	490	0	
11:40	971.0	3.3	61	nw.	6.7	396	971.0	3.3	.....	61	4.72	nw.	6.7	388	.....	5/10 Ci., wnw.; 4/10 Ci.St., wnw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 24, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m. p. s.*	*10^6 ergs.*	*volts.*	
9:04	974.1	−0.8	90	n.	2.2	396	974.1	− 0.8	.....	90	5.14	n.	2.2	388	.....	10/10, St., nnw.
						500	961.1	− 1.4	.....	88	4.79	n.	4.9	490	0	
						750	931.8	− 2.6	.....	84	4.13	n.	11.6	735	0	
9:14	974.1	−0.8	89	n.	1.8	855	919.6	− 3.1	0.50	82	3.86	n.	14.3	838	280	
						1,000	902.8	− 2.1	.....	79	4.05	n.	15.2	980	440	
9:16	974.2	−0.8	90	n.	2.2	1,041	898.2	− 1.8	−0.70	78	4.10	n.	15.4	1,021	520	Clouds changing to A.St.
						1,250	874.9	− 3.1	.....	67	3.16	n.	13.8	1,225	780	
						1,500	847.4	− 4.6	.....	55	2.28	n.	11.9	1,470	990	
9:34	974.2	−0.7	90	n.	1.8	1,514	846.2	− 4.7	0.61	54	2.22	n.	11.8	1,484	1,000	Fr.Cu. forming.
						1,750	821.1	− 6.7	.....	53	1.84	n.	11.3	1,715	1,320	
9:58	974.3	−0.6	88	n.	1.8	1,981	797.2	− 8.6	0.84	52	1.53	n.	10.8	1,942	1,640	Few Cl.Cu., sw.; 8/10 A.St., n.; 2/10 Fr.Cu., n.
						2,000	795.1	− 8.7	.....	52	1.51	n.	10.9	1,960	1,660	
						2,250	767.0	−10.6	.....	52	1.28	n.	12.1	2,205	2,000	
						2,500	745.1	−12.5	.....	53	1.10	n.	13.3	2,450	2,340	
10:11	974.3	−0.6	88	n.	2.2	2,611	734.6	−13.4	0.76	53	1.01	n.	13.8	2,558	2,500	Cl.St., forming.
						2,750	721.1	−14.4	.....	54	0.94	n.	14.1	2,694	2,690	
						3,000	697.5	−16.3	.....	57	0.83	n.	14.8	2,939	3,300	
10:41	974.5	−0.5	85	n.	3.6	3,177	681.7	−17.6	0.74	59	0.76	n.	15.2	3,112	3,270	
						3,250	675.0	.....	.....	61	.....	n.	15.5	3,184	3,370	
						3,500	652.6	.....	.....	69	.....	n.	16.5	3,429	.....	
11:04	974.5	−0.4	83	n.	4.9	3,547	648.9	.....	.....	70	.....	n.	16.7	3,474	.....	Solar halo 11:05 a. m. to 12:10 p. m.
						3,500	652.6	.....	.....	70	.....	n.	16.6	3,429	.....	
						3,250	675.0	.....	.....	72	.....	n.	16.1	3,184	.....	
						3,000	697.5	−16.1	.....	73	1.09	n.	15.5	2,939	.....	
11:24	974.3	−0.3	83	n.	4.5	2,794	716.9	−14.3	0.69	74	1.30	n.	15.1	2,738	2,500	10/10 Cl.St., sw.; few Fr.Cu., n.
						2,750	721.1	−14.0	.....	73	1.32	n.	15.1	2,694	2,450	
						2,500	745.1	−12.3	.....	69	1.46	n.	15.4	2,450	2,150	
11:40	974.3	−0.2	81	n.	4.5	2,290	765.7	−10.8	0.76	66	1.60	n.	15.6	2,244	1,900	
						2,250	768.8	−10.5	.....	66	1.64	n.	15.5	2,205	1,850	
						2,000	794.9	− 8.6	.....	65	1.91	n.	14.7	1,960	1,530	
						1,750	820.6	− 6.8	.....	63	2.17	n.	13.9	1,715	1,210	
11:54	974.2	−0.2	81	n.	4.9	1,513	846.2	− 4.9	0.63	62	2.51	n.	13.2	1,483	900	
						1,500	847.0	− 4.8	.....	62	2.53	n.	13.2	1,470	880	
						1,250	874.8	− 3.3	.....	60	2.78	n.	13.2	1,225	400	
NOON	974.2	−0.2	81	n.	5.4	1,180	882.5	− 2.8	0.08	60	2.90	n.	13.2	1,157	260	
P. M.																
12:06	974.2	−0.2	83	n.	4.0	1,055	896.5	− 2.7	−0.99	60	2.93	n.	13.3	1,034	0	
						1,000	903.0	− 3.2	.....	61	2.85	n.	13.3	980	0	
12:08	974.1	−0.1	82	n.	4.0	884	916.1	− 4.4	0.88	62	2.62	n.	13.3	867	0	
						750	931.5	− 3.2	.....	67	3.14	n.	10.8	735	0	
						500	961.1	− 1.0	.....	77	4.33	n.	6.3	490	0	
12:20	973.9	−0.1	81	n.	4.5	396	973.9	− 0.1	.....	81	4.91	n.	4.5	388	.....	10/10 A.St., nnw.

December 25, 1915.

A. M.																
9:11	970.9	−9.6	100	ssw.	2.7	396	970.9	− 9.6	.....	100	2.69	ssw.	2.7	388	.....	5/10 Ci., nw.
						500	957.8	− 5.9	.....	94	3.49	sw.	6.0	490	0	
9:16	970.7	−9.3	100	ssw.	2.7	592	946.7	− 2.6	−3.57	89	4.38	sw.	8.8	580	20	
						750	928.6	− 2.0	.....	78	4.03	sw.	8.7	735	180	
9:31	970.7	−9.1	100	ssw.	4.0	807	921.6	− 1.8	−0.37	74	3.89	sw.	8.6	791	210	6/10 Ci., nw.
						1,000	899.3	− 3.5	.....	74	3.37	sw.	8.9	980	310	
						1,250	871.5	− 5.7	.....	73	2.76	sw.	9.2	1,225	640	
10:02	970.6	−8.5	99	ssw.	4.5	1,335	861.7	− 6.4	0.87	73	2.60	sw.	9.3	1,309	820	
						1,500	844.0	− 6.9	.....	67	2.28	sw.	9.3	1,470	1,060	
						1,750	817.0	− 7.5	.....	58	1.87	wsw.	9.2	1,715	1,320	
10:45	970.1	−6.7	90	ssw.	5.8	1,841	807.0	− 7.8	0.28	55	1.73	wsw.	9.2	1,804	1,640	9/10 Ci., nw.
						2,000	790.5	− 8.1	.....	50	1.54	wsw.	9.0	1,960	2,190	
						2,250	765.8	− 8.7	.....	43	1.25	wsw.	8.7	2,205	2,940	
11:05	969.8	−6.0	85	ssw.	5.4	2,300	760.5	− 8.8	0.22	42	1.21	wsw.	8.6	2,254	3,090	
						2,500	741.0	− 9.5	.....	36	0.98	wsw.	8.3	2,450	3,680	
11:22	969.6	−5.4	85	ssw.	6.3	2,725	719.9	−10.2	0.33	29	0.74	w.	7.9	2,670	3,120	9/10 Ci., nw.
						2,750	717.1	−10.1	.....	29	0.75	w.	8.0	2,694	3,140	
						3,000	694.5	− 9.5	.....	28	0.76	w.	9.0	2,939	3,150	
11:25	969.6	−5.2	83	ssw.	6.3	3,022	692.5	− 9.4	−0.27	28	0.77	w.	9.1	2,961	3,550	
11:28	969.4	−5.0	81	ssw.	6.3	3,207	676.5	−10.0	0.33	28	0.73	wnw.	9.6	3,142	.....	
11:35	969.3	−5.1	80	ssw.	7.6	3,029	692.5	− 9.3	−0.10	28	0.77	wnw.	9.2	2,968	.....	
						3,000	694.5	− 9.3	.....	28	0.77	wnw.	9.2	2,939	.....	
						2,750	717.1	− 9.6	.....	28	0.75	w.	9.3	2,694	.....	
11:47	969.0	−5.2	76	ssw.	7.2	2,643	727.7	− 9.7	0.17	28	0.75	w.	9.4	2,590	.....	Partial solar halo 11:45 a. m. to 12:15 p. m.
						2,500	741.0	− 9.5	.....	27	0.73	w.	11.5	2,450	3,360	
P. M.																
12:03	968.8	−4.5	78	ssw.	7.6	2,282	762.3	− 9.1	0.40	24	0.67	wsw.	14.4	2,236	3,200	
						2,250	765.8	− 9.0	.....	24	0.68	wsw.	14.5	2,205	3,160	
						2,000	790.5	− 8.0	.....	24	0.74	sw.	15.2	1,960	2,820	
12:14	968.4	−4.3	79	ssw.	8.0	1,801	810.5	− 7.2	0.64	24	0.80	w.	15.7	1,765	2,650	
						1,750	817.0	− 6.8	.....	24	0.83	sw.	15.8	1,715	2,450	
						1,500	842.1	− 5.3	.....	26	1.02	sw.	16.1	1,470	2,060	
12:27	967.9	−4.1	79	ssw.	8.5	1,269	866.9	− 3.8	0.61	27	1.20	sw.	16.3	1,244	1,700	
						1,250	869.0	− 3.7	.....	28	1.25	sw.	16.3	1,225	1,670	
						1,000	896.5	− 2.2	.....	37	1.88	sw.	16.7	980	1,280	
12:42	967.2	−3.9	80	ssw.	8.0	824	916.1	− 1.1	−0.92	43	2.40	sw.	16.9	808	1,000	
						750	925.3	− 1.8	.....	45	2.37	sw.	15.4	735	830	
						500	954.5	− 4.1	.....	51	2.21	ssw.	10.1	490	250	
12:46	967.0	−3.8	82	ssw.	8.0	456	959.6	− 4.5	1.17	52	2.18	ssw.	9.2	447	140	
12:47	967.0	−3.8	82	ssw.	8.0	396	967.0	− 3.8	.....	82	3.64	ssw.	8.0	388	.....	4/10 Ci., nw.; 5/10 A. St., nw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 26, 1915.

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb*		*m. p. s.*	10^3 *ergs.*	*volts.*	
9:44	961.8	0.3	81	n.	4.5	396	961.8	0.3	.....	81	5.05	n.	4.5	388	.....	10/10 A.St., n.
						500	949.1	−0.6	.....	84	4.88	n.	7.1	490	0	Clouds lowering.
						750	920.0	−2.6	.....	97	4.77	n.	13.7	735	0	
9:53	961.9	0.5	82	n.	5.4	809	913.6	−3.1	0.82	100	4.71	n.	15.2	793	0	Altitude of St. base 800 to 900 m.
						1,000	891.1	−3.9	.....	100	4.41	n.	17.6	980	610	
9:56	961.9	0.6	82	n.	4.5	1,026	888.8	−4.0	0.41	100	4.37	n.	17.9	1,006	690	10/10 St., n.
10:00	962.1	0.7	82	n.	4.5	1,200	869.6	−2.0	−1.15	100	5.17	.....	18.1	1,176	1,250	
						1,250	863.9	−2.0	.....	97	5.01	.....	17.3	1,225	1,230	
						1,500	837.1	−1.9	.....	81	4.23	.....	13.0	1,470	1,120	
10:45	962.3	0.0	89	n.	10.7	1,719	814.7	−1.9	−0.32	67	3.50	.....	9.2	1,685	.....	Altitude of St. base 1,100 to
11:07	962.5	0.1	89	n.	8.5	1,538	833.4	−3.0	0.13	95	4.51	.....	15.9	1,507	750	1,200 m.
						1,500	838.0	−3.0	.....	95	4.51	.....	15.9	1,470	730	
						1,250	864.8	−2.6	.....	98	4.82	.....	15.6	1,225	390	
11:27	962.6	−0.1	86	n.	6.7	1,076	883.4	−2.4	−1.45	100	5.00	.....	15.4	1,055	140	Wire covered with ice.
						1,000	892.1	−3.5	.....	100	4.56	.....	15.8	980	50	
11:30	962.6	−0.2	84	n.	8.5	966	895.7	−4.0	0.14	100	4.37	.....	16.0	947	0	10/10 St., n.
11:44	962.6	−0.2	82	n.	9.8	750	920.6	−3.7	0.90	97	4.35	n.	15.3	735	0	Altitude of St. base 800 to 900 m.
						500	950.2	−1.5	.....	88	4.74	n.	9.5	490	0	
11:51	962.7	−0.5	84	n.	7.2	396	962.7	−0.5	.....	84	4.92	n.	7.2	388	.....	10/10 St., n.

December 27, 1915.

A. M.																
8:58	980.1	−12.4	88	n.	4.5	396	980.1	−12.4	.....	88	1.84	n.	4.5	388	.....	6/10 Ci., sw.; 2/10 Ci.St., sw.
						500	966.9	−13.3	.....	89	1.72	n.	6.4	490	0	
9:04	980.1	−12.3	89	n.	4.0	726	938.3	−15.2	0.85	90	1.46	n.	10.6	712	0	
						750	935.8	−15.0	.....	90	1.48	n.	10.7	735	0	
						1,000	905.1	−13.0	.....	86	1.70	n.	11.3	980	670	
9:22	980.3	−12.4	88	n.	4.0	1,184	883.7	−11.6	−0.79	84	1.89	n.	11.8	1,161	1,200	
						1,250	876.0	−11.2	.....	81	1.89	n.	11.4	1,225	1,350	Partialsolar halo 9:27 to 9:37 a.m.
						1,500	847.7	− 9.7	.....	71	1.90	nnw.	9.7	1,470	1,910	
9:44	980.3	−12.0	86	n.	3.6	1,521	845.8	− 9.6	−0.59	70	1.88	nnw.	9.5	1,491	1,960	
						1,750	820.6	− 9.2	.....	65	1.81	nw.	12.8	1,715	2,540	
9:53	980.4	−12.0	85	n.	3.1	1,838	812.1	− 9.0	−0.19	63	1.79	nw.	14.2	1,801	2,800	
						2,000	794.5	− 9.8	.....	60	1.58	nw.	14.0	1,960	3,280	
10:05	980.4	−11.9	83	n.	4.5	2,242	770.7	−10.9	0.47	56	1.34	nw.	13.6	2,197	4,000	5/10 Ci., sw.
						2,250	769.5	−11.0	.....	56	1.33	nw.	13.6	2,205	4,060	
						2,500	745.0	−12.9	.....	53	1.06	nw.	14.3	2,450	4,310	
10:40	980.3	−10.6	78	n.	4.0	2,687	727.0	−14.3	0.76	51	0.90	nw.	14.9	2,633	4,500	2/10 Ci., sw.
						2,750	720.9	−14.8	.....	51	0.86	nw.	14.9	2,694	4,450	
						3,000	697.1	−16.7	.....	50	0.70	wnw.	14.6	2,939	4,690	
						3,250	674.4	−18.5	.....	49	0.58	w.	14.3	3,184	5,320	
11:33	979.9	− 9.5	75	nnw.	3.6	3,282	671.6	−18.8	0.76	49	0.56	w.	14.3	3,215	5,420	Few Ci., sw.
						3,500	652.0	.....	.....	49	.....	w.	14.9	3,429	5,980	
						3,750	630.8	.....	.....	48	.....	wsw.	15.6	3,673	6,630	
P. M.																
12:05	979.7	− 8.7	71	nnw.	4.0	3,886	619.3	.....	.....	48	.....	wsw.	16.0	3,806	.....	
						4,000	610.0	.....	.....	48	.....	wsw.	16.0	3,918	.....	
						4,250	590.0	.....	.....	47	.....	wsw.	15.9	4,162	.....	
						4,500	570.8	.....	.....	47	.....	sw.	15.8	4,407	.....	
						4,750	552.0	.....	.....	46	.....	sw.	15.6	4,651	.....	
12:40	979.3	− 7.9	66	nnw.	3.1	4,890	541.6	.....	.....	46	.....	sw.	15.7	4,788	.....	
						4,750	552.0	.....	.....	46	.....	sw.	.....	4,651	.....	
						4,500	570.8	.....	.....	46	.....	sw.	.....	4,407	.....	
						4,250	590.0	.....	.....	47	.....	sw.	.....	4,162	.....	
						4,000	610.0	.....	.....	47	.....	wsw.	.....	3,918	6,700	
						3,750	630.8	.....	.....	47	.....	wsw.	.....	3,673	5,840	
1:16	978.9	− 7.0	64	nnw.	3.6	3,744	631.5	.....	.....	47	.....	wsw.	.....	3,667	5,820	
						3,500	652.0	.....	.....	47	.....	wsw.	.....	3,429	4,970	
						3,250	674.4	.....	.....	47	.....	w.	.....	3,184	4,100	
1:25	978.7	− 7.0	64	nw.	4.0	3,197	679.3	−17.0	0.58	47	0.64	w.	.....	3,132	3,900	
						3,000	697.1	−15.8	.....	47	0.72	w.	.....	2,939	3,510	
						2,750	720.9	−14.4	.....	46	0.80	wnw.	.....	2,694	3,000	
						2,500	745.0	−13.0	.....	46	0.91	wnw.	.....	2,450	2,490	
1:41	978.6	− 6.6	63	nnw.	2.7	2,354	759.2	−12.1	0.31	46	0.99	nw.	.....	2,307	2,160	
						2,250	769.5	−11.8	.....	45	0.99	nw.	.....	2,205	1,980	
						2,000	794.5	−11.0	.....	44	1.04	nw.	.....	1,960	1,600	
1:52	978.5	− 6.7	64	nnw.	3.1	1,770	818.9	−10.3	0.09	42	1.06	nw.	.....	1,735	1,340	
						1,750	820.6	−10.3	.....	42	1.06	nw.	.....	1,715	1,310	
						1,500	847.7	−10.0	.....	42	1.09	nw.	.....	1,470	1,020	
						1,250	876.0	− 9.8	.....	42	1.11	nnw.	.....	1,225	770	
2:01	978.3	− 6.5	66	nnw.	3.6	1,228	878.5	− 9.8	−0.82	42	1.11	nnw.	.....	1,204	750	
						1,000	905.1	−11.7	.....	44	0.98	nnw.	.....	980	540	
2:07	978.3	− 6.6	64	nnw.	3.6	972	908.1	−11.9	0.94	44	0.96	nnw.	.....	953	510	
						750	935.0	− 9.8	.....	52	1.37	nnw.	.....	735	320	
						500	965.1	− 7.5	.....	62	2.00	nnw.	.....	490	100	
2:20	978.2	− 6.5	66	nnw.	3.6	396	978.2	− 6.5	.....	66	2.33	nnw.	3.6	388	.....	Few Ci.St., sw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Continued.

December 28, 1915.

Surface.						At different heights above sea.											
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		Remarks.
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	*°C.*	%		*m. p. s.*	*m.*	*mb.*	*°C.*		%	*mb.*		*m p. s.*	*10^6 ergs.*	*volts.*	
8:59	967.2	−11.8	100	ssw.	9.8	396	967.2	−11.8	.....	100	2.21	ssw.	9.8	388	.....	Cloudless.
9:00	967.2	−11.8	100	ssw.	9.8	505	953.3	−11.9	0.09	100	2.19	ssw.	11.8	495	120	
						750	924.2	− 5.4	.....	97	3.76	ssw.	16.1	735	380	
9:02	967.2	−11.6	100	ssw.	9.8	760	922.5	− 5.1	−2.67	97	3.86	ssw.	16.3	745	400	
9:11	967.0	−11.4	100	ssw.	9.8	914	904.6	− 4.4	−0.45	79	3.33	ssw.	14.4	896	850	
						1,000	895.1	− 4.8	.....	77	3.14	ssw.	14.7	980	1,140	
9:27	966.9	−11.1	96	ssw.	8.5	1,163	876.3	− 5.5	0.44	74	2.84	ssw.	15.3	1,140	1,700	Few Ci., wsw.
						1,250	866.6	− 6.1	.....	73	2.66	ssw.	15.3	1,225	1,920	
						1,500	839.2	− 7.9	.....	70	2.18	sw.	15.3	1,470	2,520	
9:33	966.7	−11.0	96	ssw.	8.0	1,621	826.1	− 8.8	0.72	69	1.99	sw.	15.3	1,589	2,800	
						1,750	812.9	− 8.8	.....	67	1.94	sw.	14.6	1,715	3,030	
9:41	966.7	−10.7	96	ssw.	8.5	1,782	809.2	− 8.8	0.00	67	1.94	sw.	14.4	1,747	3,100	
						2,000	787.1	− 7.7	.....	59	1.88	sw.	13.8	1,960	3,490	
						2,250	762.1	− 6.4	.....	49	1.74	sw.	13.2	2,205	4,520	
10:03	966.3	− 9.9	93	ssw.	8.5	2,310	756.0	− 6.1	−0.51	47	1.72	sw.	13.0	2,264	4,900	Few Ci., w.
						2,500	737.5	− 7.1	.....	45	1.51	sw.	13.1	2,450	6,040	
						2,750	714.0	− 8.4	.....	43	1.29	wsw.	13.3	2,694	6,930	
10:26	965.8	− 9.0	90	ssw.	8.0	2,809	708.6	− 8.7	0.52	43	1.25	wsw.	13.3	2,752	7,140	
						3,000	690.9	− 8.8	.....	34	0.98	wsw.	14.1	2,939	7,800	
11:03	964.6	− 7.6	85	ssw.	8.9	3,177	675.1	− 8.8	0.03	25	0.72	wsw.	14.8	3,112	8,540	
						3,250	669.0	− 9.1	.....	25	0.70	wsw.	14.9	3,184	8,860	
						3,500	647.1	−10.2	.....	23	0.59	wsw.	15.3	3,429	.....	
11:18	964.3	− 7.6	83	ssw.	8.5	3,525	645.3	−10.3	0.35	23	0.58	wsw.	15.3	3,453	.....	
						3,500	647.1	−10.2	.....	23	0.59	wsw.	15.4	3,429	.....	
						3,250	669.0	− 9.5	.....	22	0.60	wsw.	16.3	3,184	.....	
11:36	963.9	− 6.8	72	ssw.	8.0	3,050	686.3	− 9.0	0.17	22	0.62	wsw.	17.1	2,988	.....	
						3,000	690.9	− 9.1	.....	22	0.62	wsw.	17.4	2,939	.....	
11:41	963.7	− 6.6	70	ssw.	8.5	2,871	702.3	− 9.3	0.57	22	0.61	wsw.	18.0	2,813	.....	
						2,750	713.1	− 8.6	.....	22	0.65	wsw.	17.3	2,694	7,620	
						2,500	736.0	− 7.2	.....	22	0.73	sw.	15.8	2,450	6,560	
11:56	963.3	− 6.2	71	ssw.	8.5	2,379	747.6	− 6.5	0.34	22	0.78	sw.	15.1	2,331	6,060	
						2,250	760.0	− 6.5	.....	22	0.78	sw.	16.4	2,205	5,520	
P. M.																
12:06	963.0	− 5.5	69	ssw.	8.0	2,088	775.9	− 6.4	−0.41	22	0.78	sw.	18.0	2,046	5,030	Few Ci., wnw.
						2,000	784.8	− 6.7	.....	22	0.76	sw.	18.2	1,960	4,850	
						1,750	810.0	− 7.8	.....	22	0.69	sw.	18.9	1,715	4,350	
12:16	962.7	− 5.5	67	ssw.	6.7	1,693	816.0	− 8.0	0.51	22	0.68	sw.	19.1	1,659	4,200	
						1,500	836.5	− 7.0	.....	22	0.74	sw.	18.7	1,470	3,940	
12:25	962.5	− 5.0	69	ssw.	6.7	1,258	862.3	− 5.8	0.51	23	0.86	ssw.	18.3	1,233	3,600	
						1,250	864.0	− 5.8	.....	23	0.86	ssw.	18.3	1,225	3,590	
						1,000	891.9	− 4.5	.....	24	1.01	sw.	18.2	980	2,600	
12:37	962.1	− 5.0	71	ssw.	8.5	849	908.1	− 3.7	1.77	25	1.12	sw.	18.1	832	2,000	
						750	920.6	− 5.5	.....	25	0.96	sw.	16.0	735	1,570	
12:39	962.1	− 5.0	71	ssw.	9.4	634	933.3	− 7.5	1.05	26	0.84	ssw.	13.6	622	1,060	
						500	950.0	− 6.0	.....	52	1.91	ssw.	11.4	490	470	
12:42	961.9	− 5.0	71	ssw.	9.8	396	961.9	− 5.0	.....	71	2.85	ssw.	9.8	388	.....	1/10 Ci., wnw.

December 29, 1915.

A. M.																
8:36	961.0	−8.6	81	sse.	5.4	396	961.0	− 8.6	.....	81	2.38	sse.	5.4	388	.....	10/10 A.St., sw.
						500	948.3	− 9.1	.....	79	2.22	sse.	7.0	490	260	
8:37	961.0	−8.6	82	sse.	5.4	506	947.6	− 9.1	0.45	79	2.22	sse.	7.0	496	280	
						750	918.8	− 4.7	.....	72	2.97	s.	11.0	735	870	
8:42	961.2	−8.5	82	sse.	4.9	764	916.8	− 4.4	−1.82	72	3.04	s.	11.2	749	900	
						1,000	890.1	− 3.7	.....	56	2.51	s.	10.4	980	1,200	
8:56	961.4	−8.3	82	se.	4.0	1,123	876.1	− 3.3	−0.31	47	2.18	s.	10.0	1,101	1,350	7/10 A.Cu., sw.; 3/10 A.St., sw.
						1,250	863.0	− 3.7	.....	41	1.84	s.	10.4	1,225	1,750	
						1,500	836.2	− 4.6	.....	28	1.16	s.	11.2	1,470	2,410	
9:55	962.6	−7.5	73	sse.	4.5	1,568	829.4	− 4.8	0.34	25	1.02	s.	11.5	1,537	2,600	2/10 A.Cu., sw.; 8/10 A.St., sw.
						1,750	810.2	− 6.2	.....	29	1.05	s.	10.9	1,715	3,240	
						2,000	785.0	− 8.0	.....	35	1.08	ssw.	10.0	1,960	4,110	
						2,250	759.9	− 9.9	.....	42	1.10	ssw.	9.0	2,205	4,460	
10:58	963.2	−6.1	66	se.	5.4	2,312	754.3	−10.4	0.75	43	1.08	ssw.	8.8	2,266	.....	Altitude of A.St. base about 2,400 m.
						2,500	735.2	− 9.5	.....	73	1.98	ssw.	9.3	2,450	.....	
11:59	963.2	−4.7	69	se.	4.5	2,637	723.2	− 8.9	0.46	95	2.72	ssw.	9.6	2,584	.....	
						2,750	713.1	− 9.1	.....	95	2.67	ssw.	10.1	2,694	.....	
						3,000	689.5	− 9.5	.....	96	2.60	sw.	11.2	2,939	.....	
P. M.																
12:05	963.2	−4.6	68	se.	4.5	3,186	673.6	− 9.9	0.21	97	2.54	sw.	12.0	3,121	.....	
						3,000	691.1	− 9.4	.....	98	2.69	sw.	10.0	2,939	5,140	
						2,750	712.0	− 8.8	.....	99	2.85	sw.	10.6	2,694	4,510	
12:20	963.2	−4.0	66	se.	4.0	2,654	721.7	− 8.6	−0.11	100	2.94	sw.	10.8	2,601	4,270	
						2,500	736.1	− 8.8	.....	99	2.86	sw.	11.8	2,450	3,890	
12:32	963.2	−3.9	55	se.	4.0	2,295	756.0	− 9.0	0.68	98	2.78	ssw.	13.2	2,249	3,500	
						2,250	760.1	− 8.7	.....	96	2.79	ssw.	13.0	2,205	3,420	
						2,000	785.0	− 7.0	.....	84	2.84	s.	11.5	1,960	3,080	
12:45	963.2	−4.1	59	se.	4.0	1,749	810.9	− 5.3	−0.06	71	2.78	sse.	10.0	1,714	2,860	
12:55	963.2	−4.3	58	se.	4.0	1,572	829.4	− 5.4	0.30	57	2.21	sse.	9.5	1,541	2,700	
						1,500	837.1	− 5.2	.....	55	2.17	sse.	9.4	1,470	2,540	
						1,250	864.2	− 4.5	.....	47	1.97	sse.	9.1	1,225	1,980	
1:07	963.2	−4.3	61	se.	4.0	1,032	888.4	− 3.8	−0.45	41	1.82	sse.	8.9	1,012	1,520	
						1,000	892.1	− 3.9	.....	41	1.81	sse.	8.9	980	1,450	
						750	921.2	− 5.1	.....	39	1.55	sse.	8.7	735	900	
1:18	963.3	−4.1	60	se.	4.0	633	934.7	− 5.6	0.68	38	1.45	sse.	8.6	621	600	
						500	951.0	− 4.7	.....	50	2.06	se.	6.3	490	280	
1:22	963.3	−4.0	59	se.	4.5	396	963.3	− 4.0	.....	59	2.58	se.	4.5	388	.....	10/10 A.St., sw.

TABLE 5.—*Free-air data from kite flights at Drexel Aerological Station*—Concluded.

December 30, 1915.

Surface.						At different heights above sea.										Remarks.
Time.	Pressure.	Temperature.	Relative humidity.	Wind.		Altitude.	Pressure.	Temperature.	$\frac{\Delta t}{100\ m.}$	Humidity.		Wind.		Potential.		
				Dir.	Vel.					Rel.	Vap. pres.	Dir.	Vel.	Gravity.	Electric.	
A. M.	*mb.*	°*C.*	%		*m. p. s.*	*m.*	*mb.*	°*C.*		%	*mb.*		*m. p. s.*	10^5 *ergs.*	*volts.*	
9:56	978.2	−5.8	89	e.	1.8	396	978.2	−5.8	.....	89	3.34	e.	1.8	388	.....	7/10 Cl., sw.; 2/10 Cl.St., sw.
						500	965.1	−4.3	.....	82	3.49	e.	4.5	490	.....	
10:23	978.3	−3.7	83	ese.	1.3	529	961.9	−3.8	−0.38	80	3.55	ese.	5.3	519	.....	
						500	965.1	−3.6	.....	80	3.62	ese.	4.3	490	.....	
10:34	978.3	−2.8	80	ese.	1.3	396	978.3	−2.8	.....	80	3.87	ese.	1.3	388	.....	10/10 Cl.St., sw.

December 31, 1915.

P. M.																
2:41	968.6	−0.7	84	ssw.	2.7	396	968.6	−0.7	.....	84	4.84	ssw.	2.7	388	.....	10/10 St., ssw.
						500	956.2	−1.4	.....	82	4.46	ssw.	3.2	490	.....	Electric potential very high;
2:44	968.8	−0.7	84	ssw.	3.1	598	944.5	−2.1	0.69	80	4.10	s.	4.7	586	.....	over 10,000 volts.
2:46	968.8	−0.7	85	ssw.	3.1	659	937.3	−1.8	−0.26	82	4.31	s.	4.7	646	.....	
2:50	968.6	−0.6	85	ssw.	3.1	508	918.1	−1.9	0.76	89	4.65	s.	4.7	557	.....	
						500	956.2	−1.4	.....	88	4.79	s.	4.2	490	.....	
2:57	968.5	−0.6	86	ssw.	3.6	396	968.5	−0.6	.....	86	5.00	ssw.	3.6	388	.....	10/10 St., ssw.